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# *Report of the Proceedings of the* **INTERREGIONAL LIVESTOCK PRODUCTION and MARKETING CONFERENCE**



\* *June 14-17, 1954*

At North Carolina State College, Raleigh, North Carolina

FEDERAL EXTENSION SERVICE • U.S. DEPARTMENT OF AGRICULTURE WASH., D. C.







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## WELCOME TO NORTH CAROLINA

It is a privilege for North Carolina to be host to the livestock production and marketing specialists from the Eastern part of the United States. Rest assured that our college personnel and the entire livestock industry will do all in their power to make your stay pleasant and profitable.

I place particular importance on this meeting. We have said for years that we needed a livestock program to help balance our economy. We feel that a sharp expansion in livestock will not only increase incomes, but will provide stability and encourage conservation of natural resources in our area. Our institution and most other institutions in the Southeast have made serious efforts in recent years to increase the income from livestock. Great progress has been made, but even more progress needs to be made.

Falling prices, dry weather, and poor markets are causing people to question whether we will even maintain our present position in livestock production. I feel that there is a serious need for the people involved in livestock production and marketing to study the situation and to develop programs which will make it possible to continue our livestock expansion. The whole Extension Service faces a serious challenge, but this group more than any other is on the spot. I challenge you to find out what is required to continue our livestock expansion and I promise you the full support of the Administration in carrying out a sound, integrated program.

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David S. Weaver, Director, North Carolina Agricultural Extension Service, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, at Raleigh, North Carolina.



THE EXTENSION SPECIALIST'S ROLE  
IN THE LIVESTOCK PRODUCTION AND MARKETING FIELD 1/

I appreciate the opportunity of discussing the Extension Specialist's role in the livestock production and marketing field.

First, I would like to make a few comments in regard to the conference. I would like to complement the committee that planned the program. I think this committee did an excellent job of bringing together many interesting aspects of the livestock production and marketing phases of our program. I feel that I have been well repaid for the time I have spent attending the conference. Certainly, all of us need this type of information if we are going to be able to adjust production to consumer demand. I am sure that I know more about the problems involved in the production of the meat-type hog, and the importance of adjusting our breeding and feeding program to producing this type hog for the market.

Our hosts here in North Carolina, certainly have done everything possible to make this conference a success. Since this conference has been held more than once in our own State, I realize the work involved in planning such a conference. I feel that the North Carolina Extension Service and other folks at the College have done an outstanding job. I also feel that the contribution made by members of the staff of the North Carolina State Department of Agriculture and representatives of the various marketing agencies has added much to the conference.

While there is some difference in the organizational pattern of the Extension Service in the various States, in the main the Extension Service is made up of administrators, supervisors, specialists and county workers. The subject matter specialists are a very vital group in the total Extension program. All members of the Extension Service should think in terms of teamwork. We need to work as a team in planning and executing our Extension program. Extension workers should also realize that they are a part of the Land Grant College. Research and Extension work hand in hand. The Land Grant College system has performed a great service to agriculture and has a very bright future from the standpoint of its opportunity to render service.

As to the specific job of the Extension specialist, he acts as sort of a middle man between the College and Experiment Station and the county Extension staff. If we think in terms of a football team, the specialist might be considered as the coach. He gives the plays to the team and says, "Come on, boys! Let's get the job done!" He contributes inspiration, enthusiasm, and "know-how" to the county worker.

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1/ Presented by J. O. Knapp, Director of Extension Service, West Virginia University, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



The job of the Extension Specialist in the production and marketing field. I believe we have to go back to the problems of production before we get into the marketing field. The various speakers and the discussions carried on during this conference have shown the importance of adjusting production to consumer demand. Since much has been said here at the conference in regard to production, I will not dwell upon this important phase of our program, but I would like to emphasize its importance.

Marketing means different things to different people. Some leaders feel that the major problems of agriculture can be solved through adequate marketing systems. Extension has been criticized for not doing more in the field of marketing. I think we need to take a look at what our objectives are in a marketing program. Are the objectives to secure a greater share of the consumer dollar for the producer? Are the objectives to eliminate the middle man in the picture? In 1953, the farmer--the producer of the raw material--got an average of 45¢ of the consumer food dollar. Is there a possibility that in 1955 or some future year, through a better distribution system, the farmer can get a larger share of this consumer dollar? Maybe we had better take a look at what happens to the other 55¢ of this dollar. Many people are earning their living from this 55¢. There are almost five million people in the United States engaged in the marketing of agricultural products. These people are engaged in processing and distributing these products--some 25 percent in processing plants and 60 percent in retail stores. The possibility of the consumer demanding more in the way of processing, pre-packaging, pre-cooking, frozen foods, and the like are such that the producer may get still less of the consumer dollar instead of more. I am sure that none of us knows what portion of the consumer dollar should go to the farmer. This varies from commodity to commodity and how much processing and distribution costs are involved.

In thinking in terms of developing an orderly marketing program, we can not disregard the large holding by the Government of surplus commodities and the export situation. At the time of the Korean War, we exported four billion five hundred million dollars worth of agricultural products; last year we exported two billion eight hundred million dollars worth of agricultural products. The method used for the disposal of dairy and other surplus stocks will have quite a bearing on future markets.

Can we build a good domestic market if we give food stuff away? A report from one eastern industrial city illustrates this point. There is some unemployment in the area. USDA shipped surpluses, including butter, cheese, dry milk, and canned beef-and-gravy to the city for free distribution. Local officials took over the responsibility of free distribution and establishing eligibility to receive the surpluses. Wholesale and retail food chains and independents agreed to cooperate. They warehoused and handled at retail the distribution of these surpluses at their own expense. The cooperating merchants soon found that their regular sales were being drastically affected. Sales of oleomargarine, for example, dropped more than two-thirds. Other items suffered drastic sales losses. Investigation disclosed that the number of families receiving the free surpluses was more than three times the unemployment in the area. They also found that on a large scale, qualified recipients were accepting service out of the retail stores in quantities more than their families could use and were then trading these commodities with other people for such items as soaps, beer, canned goods, etc. This resulted in a general reduction of sales of these articles.



At the recent Extension Administrative Conference on Expanding Marketing Educational Programs, held in Chicago the latter part of May, Mr. Gerald B. Thorne, Vice-President of Wilson & Company, presented a paper on educational opportunities with marketing agencies. I would like to suggest that when you get back home each of you check in the Director's office and get this paper and read it carefully. Mr. Thorne emphasizes the need for a two-way system of communication between farmers and consumers, using marketing agencies to the fullest in supporting the two-way system. If such a system were put into effect, it would result in improved marketing efficiency and would expedite the transmission of consumer preference back to the producer.

I wish time would permit me to discuss further the many good ideas Mr. Thorne presents, but I would like to point out his final statement which is as follows:

"My final thought is one that may sound presumptuous, especially since it has been repeated so many times in Extension circles. However, it is so vital to ultimate success that it seems appropriate here. Extension's area of work is strictly in the field of voluntary education. It was never designed as an action agency, nor as a relief agency. It has done much for people, but its greatest results have come from helping people to help themselves. Adherence to this concept in marketing extension is important -- the temptations not withstanding."

I would like to again point out that I feel Extension specialists have a vital part to play in the Extension program. I would like to make five definite statements in regard to Extension specialists--their qualifications, training and program work.

We need:

1. Better qualified specialists:  
Better trained men and women with broader interests, who keep up-to-date.
2. Closer integration of specialist programs and county programs.
3. Better teaching techniques and better teaching materials for use of specialists and county staff.
4. More emphasis on training of county staff.
5. Spend less time on records, acting as secretary of breed associations, personal service, etc.

In closing, I would like to leave with you this final thought. It might be in the form of a short prayer, which is not original with me, but I feel it is good Extension philosophy.

"Heavenly Father, give us serenity to accept what cannot be changed, courage to change what should be changed, and wisdom to know one from the other."



WHAT IS A MEAT-TYPE HOG? 1/

My subject, Meat-Type Hogs, means a lot to the future of agriculture. It also means much to the meat eating people of our country and the world.

Whose responsibility is it to see that the consuming public has more of the desired kind of pork available? Until very recently, no one wanted to take any responsibility or blame for failure in the past to provide more of the kind of pork products that have consumer preference.

Purebred breeders were able to sell the fat kind of breeding stock to good advantage and in many cases better, so were reluctant to change. The commercial producer received the same price at the market for the wrong kind and in many cases they really were bad - the kind that drove the homemaker away from the pork counter - and yet the live price was the same. For many years, the actual meat-type hog was discounted at the live market. It is pretty hard to encourage the production of meat type when the over fat, poor muscled, stinker kind of hog is bringing the same price or more. As you well know, the packer shirked his responsibility toward improving the kind of hogs he was processing due to his indifference at the market. At the same time, many producers were reluctant to have their hogs sorted.

During this time, much experimental work such as breeding, selection, feeding and management was carried on. What we forgot was to look under the hide. We lost sight of the real purpose of raising hogs - that of producing meat. More experimental work correlating breeding, feeding and feed conversion with the carcass is vitally needed. The best meat-type breeding stock can be ruined by feeding too long. We must show swine producers through live and carcass demonstrations what is the ideal finish on a market hog. The packer must train his buyers likewise. This is rather new to both groups but it is something that is long over due. Educators have a big, wide-open field ahead with a lot of work in sight. Beef and lamb may offer some challenge that we may not have thought too much about in the past.

The packer and retailer are only the commission men between producer and homemaker. It is true that the parties in between the producer and consumer have much to gain by more volume from a better product, but the grower will be hurt even more by the lack of numbers.

While all groups connected with the swine industry have been doing a lot of finger pointing at each other, what has happened? The homemaker is not buying pork at the present time in the volume she had been during the past few years. She has two things in mind when she walks up to the self-service counter - first, is quality and second is price. She has spent practically the same percentage of her disposable income for meats year in and year out during the last half century. She balances the quality and price of competing meats, making the decision so important to her. Her selections are ever important to her. Her selections are ever important to the producer. She is

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1/ Presented by Wilbur L. Plager, Field Secretary, Iowa Swine Producers Association, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.



tightening the rules of the game. The keen competition for her meat dollar is permitting her to do so. The only answer to her rules of the game is more meat, less fat - in other words, the MEAT-TYPE HOG.

What is a meat-type hog? It is a hog that has width of back, loin, and ham that is muscle. Most beef cattle have been bred for muscle; dairy cattle have been bred for milk; hogs need to be bred for more meat. This can be done and it will be a meat-type hog.

Some think the bacon breeds are the answer to the meat-type hogs. That is wrong. You must have a hog with ham, loin besides bacon, plus growing ability. All breeds have meat-type hogs - all have some of the wrong kind, also. Some breeds definitely have more of the meat type. When any so-called bacon hog has ham, along with a well muscled loin, plus bacon, it ceases to be a bacon hog and becomes a meat type. You can sell this kind of hog to the producer. You will be wasting your time on the other kind. History has quite well proven this in the past.

The fortunate thing for the future of the pork industry is that this meat-type hog can be produced as cheaply as the wrong kind. In many cases it can be done cheaper. This meat-type hog has more length of body which tends to increase litter size, along with number of teats so more pigs can be raised per sow. Milking ability normally increases with this type of sow, as does the inclination to use good pasture to a better advantage. Some would confuse the real meat-type hog with the rail splitter that has length only, no spring or rib, showing no muscle through the back, loin, or ham. Some would confuse this meat-type hog with the runt. The reason he might have had a meat-type carcass is that he went to town with the right amount of finish. His good-doing brother would have been as meaty or meatier than the runt with the right amount of finish. Don't be misled by this long slim-Jim hog that lacks muscle for meat. He is a meatless wonder. The short, chuffy hog is full of lard, lacks muscle, has too small a frame to make efficient gain.

Many people fear we could not produce enough lard with the meat-type hog. They can relax and quit worrying because we can produce all the lard we will ever need on meat-type hogs by just feeding them longer or to heavier weights.

A meat-type hog of the ideal weight, 220 to 225, should be around 30 inches long, with 1.25 to 1.6 inches of backfat. The slim Jim with no muscle and only 1.5 inches of backfat would still be a meatless wonder. More conformation helps at the lower measurements of backfat.

Hogs have been good convertors of feed to meat - plus income - and the consumer demand too good to let go to the winds due to finger pointing and self-satisfaction. For many years, meaty pork products have been enjoyed by large numbers of people and today many are craving these products in still larger amounts but do not want the fat kind. There is a big market for the products of the meat-type hog, within easy reach for a little effort and cooperation.



## BREEDING - PRODUCING THE MOST DESIRABLE HOG

by

John H. Zeller

Head, Swine Section

Animal and Poultry Husbandry Research Branch

U. S. Department of Agriculture

Presented at the Interregional Livestock  
Production and Marketing Conference at  
Raleigh, North Carolina, June 15, 1954.

It is not only a pleasure but a highly profitable experience to meet with you extension specialists to talk over our mutual problems.

The subject of producing the most desirable hog for present day conditions is of interest not only to producers, but also to housewives who now are actively demanding pork with more lean and less fat.

The breeds of hogs developed by the early settlers in America were primarily lard-type breeds. They had the ability to convert feed rapidly into pork and lard. Surpluses of American pork and lard found ready markets abroad and became an important item in world trade.

In the beginning of the present century, the export trade in pork and lard began to decline. About the same time changing conditions in our national economy, as well as increasing use of competitive vegetable fats and oils for markets formerly held by lard, and the fact that vegetable fats can be produced more cheaply than animal fats, were all contributing factors calling for a change in hog type. The American housewife began to demand quality pork - "More lean red meat - less white fat meat."

Today, lard retails for less per pound than the packer pays for the live weight of hogs. The packer takes about a 20 percent shrink in reducing the fat to lard. Thus, the surplus of lard pulls down the price the producer gets for his hogs.

There has long been a growing realization on the part of swine producers, marketing agencies, packers and professional animal breeders that something must be done about the lard problem. The problem is essentially one of reducing lard yields by increasing the production of meatier hogs. The three most common proposals are, (1) development and wide acceptance of strains of meat-type hogs which will yield proportionately larger amounts of lean meat and less lard than the average run of hogs, even when full fed, (2) proper feeding so that the pig gets a balanced diet with enough feed for maximum muscular development, and (3) marketing hogs at lighter weights.



### Breeding for Quality Hogs

The chief aim in current swine research is to develop and test new methods by which hog raisers can produce, most efficiently, the kind of pork products most consumers prefer. In breeding studies, special attention is given to the effects of different systems of breeding upon such characters as prolificacy, mothering ability, vigor, rate of gain, efficiency of feed utilization, and carcass quality.

Swine breeding research studies were conducted in the 20's and 30's at State agricultural experiment stations and the U. S. Department of Agriculture, to study types of hogs that would best meet consumer demands for more lean meat and less lard. Results of these studies showed that in general intermediate type hogs are superior to those of small or large type in feed lot performance. They finish at weights of 180 to 225 pounds, and meet the bulk of demands for a good type carcass. Small type hogs are less efficient in general performance. Large type hogs must be fed to weights of 250 pounds or more to attain sufficient finish to produce a desirable carcass. Intermediate type hogs in general are superior to those of small or large type from the standpoint of both the producer and consumer.

Swine breeding investigations at the Agricultural Research Center at Beltsville, Maryland, since 1934 have had as their major objective the development of inbred lines from crosses of the Danish Landrace and Danish Yorkshire with stock of the Chester White, Duroc, Hampshire, Poland China and English Large Black breeds. The six lines which have been developed from these crosses include a white Landrace-Chester White, a red-and-black spotted Landrace-Duroc, a red-and-black spotted Landrace-Duroc-Hampshire, a solid red Yorkshire-Duroc-Landrace-Hampshire, a black-and-white spotted Landrace-Poland China and a solid black Landrace-Large Black line. Some of these lines have tended to be better in certain respects than others. However, their performance with respect to prolificacy, rate of growth, efficiency of feed utilization and carcass quality, compares favorably with that of an inbred line of purebred Landrace and various purebreds of domestic origin, which have been maintained as control stock.

The new inbred lines average about 9 pigs per litter at birth and 6.5 pigs per litter at weaning. Pigs in litters that are being fed under record-of-performance conditions are making an average daily gain of 1.45 pounds from weaning to approximately 225-pound weight and have an average feed consumption of about 340 pounds of feed for 100 pounds of live-weight gain. They reach market weight at 5-1/2 to 7 months of age. When slaughtered at 225 pounds, about 50 percent of the live weight of these hogs consists of the five preferred cuts, namely - hams, loins, bacons, shoulders and shoulder butts, although many individual hogs exceed this yield. From 1-1/2 to 1-3/4 inches is regarded as the most desirable thickness of back fat.



### Crossing of Inbred Lines

To determine the effect of crossing inbred lines of swine at Beltsville for the production of market hogs, single crosses between six inbred lines of swine were compared with their parental lines in two seasons.

Crosses exceeded inbreds by 1.2 pigs per litter, or 14 percent, at birth; by 1.7 pigs, or 27 percent, at 21 days; and by 1.7 pigs, or 29 percent, at 56 days. Therefore, both prenatal and postnatal viability, were higher among crosses than among inbreds. In litter weight, crosses exceeded inbreds by 2.4 pounds, or 10 percent, at birth; by 17.9 pounds, or 28 percent, at 21 days; and by 64 pounds, or 40 percent, at weaning. In individual pig weight, differences in favor of crosses were 0.3 pound, or 3 percent, at 21 days; 2.7 pounds, or 10 percent, at 56 days; 6.6 pounds, or 8 percent, at 98 days; and 9.3 pounds, or 6 percent, at 140 days. Carcass data showed that crosses had a slightly higher dressing percentage, a slightly lower yield of lean cuts, and more fat than did inbreds.

### Top Crossing

Experiments recently completed at the Beltsville station, and in cooperation with the Pennsylvania Agricultural Experiment Station and a group of 28 swine growers in that State show rather clearly that the inbred lines of meat-type hogs developed by the Department from crosses between the Danish Landrace and various other breeds produce pork as efficiently as selected farm-raised purebreds. There was practically no difference between inbreds and purebreds in the percentage of the five primal cuts, but purebreds averaged a little higher in percentage of fat cuts. Length of carcass which is one of the criteria of cut-out value in pigs, averaged 32.0 inches for inbreds as compared with 30.4 inches for purebreds. Data on crosses between purebreds and inbreds showed no appreciable difference in yield of five primal cuts, but crosses showed a considerable advantage in viability and rate of growth as compared with inbreds and purebreds.

### Future Work

Following completion of the crossbreeding studies involving the pure breeds, the plan for Beltsville is to start two new lines of work, both of which should result in useful information for the swine industry. One of the projects will be concerned with selection for high and low degrees of fatness in swine. The plan of this project is to develop, within both a lard and a bacon-type breed, a line high in thickness of back fat, and a line low in thickness of back fat, the primary purpose being (1) to determine the effectiveness of selection in changing carcass composition and (2) to measure the importance of hereditary and environmental factors as causes of variation in thickness of back fat and related carcass characteristics. Selection will be primarily on the basis of the individual's own back fat thickness, all back fat measurements to be obtained by direct measurements on the live animal.



The other project to be conducted at Beltsville will be one of reciprocal recurrent selection for superior performance in swine, the plan being to develop two strains of hogs, selection within each strain to be based primarily on the performance of crosses between the two strains. The foundation stocks for this project will be selected on the basis of test crosses involving stock of three pure breeds and three inbred lines. The characteristics to receive special attention in this program will be viability as measured by litter size at birth and at weaning, litter weight at weaning and rate of growth to 140 days of age.

A program of reciprocal recurrent selection involving stocks of the Montana No. 1 and Yorkshire breeds was started at Miles City in the fall of 1952. The purpose of this work is to improve the two stocks for maximum combining value with respect to various economically important characteristics.

In 1937, the Regional Swine Breeding Laboratory with headquarters at Ames, Iowa, was established through cooperation with State agricultural experiment stations in the Corn Belt and the U. S. Department of Agriculture. The work of the Laboratory is concerned primarily with the development of inbred lines within the pure breeds. Today experiments are conducted at nine State experiment stations, namely, Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, Oklahoma, South Dakota and Wisconsin. The program undertakes to discover, develop and test practices in breeding and selection which can be used by breeders and producers to speed improvement in feed-lot performance and carcass quality.

In this work to date, stocks of nine breeds have been used. Approximately 100 inbred lines have been started, about half of which have been culled. Selections have been made on numbers of pigs farrowed and weaned, litter weight at weaning, growth rate at 154 days, economy of gain and carcass quality.

Crossbreeding trials with inbred lines of various breeds consistently show a relation of hybrid vigor to litter size, growth rate and survival of pigs. Genetic diversity of the stock from which inbred lines are formed appears to facilitate the finding of lines that produce best results in line crossing. Crosses involving three or more inbred lines of the same breed usually show advantages in litter size and growth rate in comparison with non-inbred stock of the same breed. Use of selected inbred lines in rotation line crossing within breeds appears to have merit in producing pedigreed stock.

Progeny of inbred boars of several inbred lines tested on farms have excelled litters by non-inbred boars. Performance of top-cross gilts from litters by inbred boars proved superior to gilts by non-inbred boars tested on farms under similar conditions.



An outstanding accomplishment of the Laboratory has been the development of a method of determining the degree of fatness in live hogs as a means of selecting breeding stock for improvement of carcass quality. An incision is made in the skin over the back about 1-1/2 inches from the mid line and a graduated metal rule is pressed through the layer of fat until it reaches the muscle. The method is simple, and a practical tool that can be easily used by the producer in selection of breeding stock for thickness of back fat.

An excellent U. S. Department of Agriculture Circular No. 916, entitled, "Results of Swine Breeding Research" by Dr. W. A. Craft, Director of the Laboratory, describes the regional program in detail, and can be had for the asking.

#### New Breeds Developed from Inbred Lines

As a result of swine improvement research at State and Federal stations a number of inbred lines developed from a crossbred foundation of two or more breeds have been purchased by swine breeders. As the number of breeders increased a demand arose for purebred registration. So, today, there are six new breeds being registered from foundation stocks developed by research.

The names of the new breeds, their derivation and color are as follows:

<u>Name</u>	<u>Origin</u>	<u>Color</u>
Minnesota No. 1	(Landrace-Tamworth)	Red
Minnesota No. 2	(Yorkshire-Poland China)	Black and white
Montana No. 1	(Landrace-Hampshire)	Black
Beltsville No. 1	(Landrace-Poland China)	Black and white
Beltsville No. 2	(Danish Yorkshire-Duroc-Landrace-Hampshire)	Red
Maryland No. 1	(Landrace-Berkshire)	Black and white

The above breeds are registered by the Inbred Livestock Registry Association, University Farm, St. Paul 1, Minnesota. Literature describing the various breeds may be obtained upon request.

#### Commercial Aspects

In the commercial field a large number of breeders are going into the production of hybrid boars for sale as breeding stock to farmers, to improve carcass quality, as well as feed lot performance of their progeny. Many companies are developing their own inbred lines, while others are carrying inbred lines obtained through research stations and top crossing inbred boars of other lines in a rotation program.

Several record associations of purebred American breeds are sponsoring a swine improvement program to ferret out better lines of meat-type hogs within their own breeds. If animals meet certain standards of feed lot production, as well as carcass quality, they are certified, and are worth more for breeding stock.



No one breed has a monopoly on meat-type hogs. However, some breeds have more than others. An intensive campaign should be put on by all breed associations to locate, identify and certify meat-type animals, rapidly to increase numbers of breeding stock so urgently in demand at present.

### Pig Hatcheries

There has been quite a bit of discussion during the past three or four years as to the possibilities of producing quality feeder pigs for sale to farmers to feed out for market. This is a specialized business and seems to be attractive to a number of private producers, who farrow from one hundred to four or five hundred sows yearly and market the pigs at weaning time.

Pig hatcheries, if properly handled by experienced swine men, seem to offer possibilities similar to chick hatcheries which have flourished in the broiler industry. Success or failure of large pig hatcheries would depend on how well they are able to cope with sanitation and disease problems, under conditions of heavy concentration of animals. Farmers' interest in hatcheries however, seem to rise and fall with the hog market, and with the relationship between the price of corn and the price of hogs.

A recent innovation of a Mail Order House (Spiegel & Co. Chicago), who advertise in their Spring and Summer Catalog, page 452, meat-type weanling pigs for sale, has brought a flood of orders from different parts of the country. The demand at present far exceeds the supply. Baby pigs weighing 35 pounds and over are sold at \$24.95 each f.o.b. shipping point, while lots of 2 to 24 are priced at \$23.95 each. Twenty-five or more are priced at \$22.00 each f.o.b. shipping point. All pigs are vaccinated for both hog cholera and erysipelas, castrated and free from external parasites. The weaning pigs are raised at pig hatcheries and shipped on order. The largest orders at present are coming from cattle feeders for pigs to follow steers in the feed lot. Small lot orders are coming from families who are willing to pay a higher price for quality meat-type pigs for the family meat supply.

### What is a Meat-Type Hog

The most desirable meat-type hog is one with a natural tendency to yield the maximum percentage of the highest priced meat cuts, including trimmed hams, loins, picnic shoulders, and shoulder butts, with enough finish to secure firmness of carcass. That lighter finish means less lard, a cheap product that retails at less money per pound than the price paid per pound for the live hog.

On foot, the intermediate type hog weighing between 180 and 240 pounds with the bulk averaging 200- 225 pounds best meets market demands. Such hogs should have good length of body, with good spring of rib. A long body, especially between the shoulder and ham, with deep, smooth sides, a broad loin, a wide, well muscled ham and depth of ham carrying to within two inches of the hock, provides a desirable carcass. The rear flank should be thick and carry down well to square out the side of bacon. The head should be trim, with light jowls. The legs should be of medium length and average about 12 inches from the elbow joint of the front leg to the toe.



The carcass of such a hog should measure at least 30 inches in length from the first rib at the breast bone to the aitch bone at the ham and should not exceed 1.75 inches in average thickness of back fat when well finished. In fact, less thickness of back fat, in keeping with firmness and quality of carcass is most desirable if we are going to lick the lard problem. In the last analysis the only way to lick the surplus of lard is not to produce the fat.

### Producing Meat-Type Hogs

To produce the type of hog that will meet consumer demands it must not only be bred right, but should be fed right, and marketed at the right weight to produce a high yield of lean cuts, with not too much fat. The hog must be fed a ration which will make it possible to recognize hereditary differences in growth and muscle development with as high a degree of accuracy as possible. The ration must contain carbohydrates, proteins, minerals and vitamins in proper proportions to meet daily requirements. A 225-pound corn fed hog with 1.5 inches of back fat should yield meat for two people and lard for two on an annual consumption basis. Such a hog, according to present standards for market hogs, should grade U. S. Choice No. 1. At present in the Corn Belt markets, less than a third of the hogs fall in the Choice No. 1 grade.

Two or three years ago, when pig hatcheries first attracted attention, a number of so-called synthetic milks or sow's milk substitutes, developed commercially were given considerable favorable publicity. Feeding results with these products were good from first reports, but later results indicated that rather rigid management practices were necessary for success. Under average farm conditions, the method was not too reliable. As a result the manufacturers have largely discontinued production of milk substitutes that are fed as liquids and are emphasizing dry or semi-solid starter diets with the pigs being allowed to suckle naturally for from one to five weeks.

There is widespread current interest in the swine industry to wean pigs at an early age and market them as feeder pigs, not only to speed financial returns for swine production and increase the use of available facilities for pig production, but also to reduce the heavy losses of baby pigs in the period from birth to weaning.

A number of experiment stations are experimenting on dry or semi-solid started diets. An article in the trade journal, "Feedstuffs" of April 17, 1954, concerning work at the Iowa State College, gives results of this method of feeding and details of the diets fed. The April 1954 issue of "Country Gentleman," page 38, also reports results on the farm feeding of pigs weaned at 7 days of age, based on the above Iowa study.

### Marketing Hogs at Lighter Weights

The farmer should be impressed with the fact that he can help balance pork and lard supplies by sending his pigs to market when they reach a finish that will put them in the top grade. The kind of production job done by the farmer shows up in the quality of carcass that appeals to the consumer. The Meat Section at Beltsville evaluates the carcass by the percentage yield of the five trimmed primal cuts based on the live weight of the hog at slaughter. Some fat hogs cut out as low as 38 to 40 percent of the primal cuts, while some hogs run over 50 percent.



At Beltsville, 93 percent of the hogs of the seven inbred lines farrowed in the spring of 1950 and 1951, graded No. 1 in the carcass, crossbreds sired by American bred boars and out of inbred line sows graded 79 percent No. 1, and purebred American hogs graded 73.7 percent No. 1 in the carcass.

The inbred lines of hogs developed at Beltsville that yield a high percentage of primal cuts have a dressing percent of 78 to 81. In other words, meat-type hogs can be produced that are fast gainers, have high dressing percentage and high cut-out value. Lean meat, a high price article, is replacing fat, a low price article, often on a pound for pound basis. Therefore, the true meat-type hog is worth more to the consumer, and consequently more to the producer, and to the packer.

The wise farmer should look to markets that are willing to buy and sell hogs on their worth. This means marketing by grade either on foot or in the carcass, at local concentration points if possible, in order that the producer may be able to select the better breeding stock and cull the undesirables. A number of packers are paying a differential for top grade hogs realizing they are more profitable than the fat, or overfat hogs.

#### Cooperation of Industry Essential to Success

The lard surplus problem has become so acute in recent years that industry has decided to do what it can to bring about a rapid increase of meat-type hogs to meet consumer demand for lean pork.

In 1953 various segments of industry, such as producers, farm organizations, breed associations, stockyard and marketing associations, packers, retailers, State and Federal Research men, met on several occasions to develop an exhibit that would point out facts to encourage the growing and marketing of better meat-type hogs. The exhibit was sponsored and financed cooperatively by the various organizations and is being shown at International, State and local livestock shows, industry meetings or where it can be utilized to best advantage of the public.

#### What Can WE Do

I use the pronoun WE because that is a collective job. Each unit must share in making his contribution if the program is to move forward and be a success. It means team work. Carry the story all along the line with everyone with whom you come in contact. Sell the other fellow on his responsibility to give society the best product or service he can. Emphasize the moral, as well as the social or financial responsibilities we all have in contributing to the health and well being of the greatest number. And, let's furnish a product that will be a credit to all.

Research has a large part to play in finding the answers to many questions that have been taken for granted. Experiment station personnel are planning research to follow hogs from the farrowing pen to the consumer's table and find out how to produce and market better quality pork, at less money, but with profit to all.



We must have help from the Extension Service to do a selling job to the farmer, and through the various channels from producer to consumer on "How and Why Breed, Feed, and Market More Meat-Type Hogs That Yield More Valuable Pork."

In Summary

1. There are meat-type hogs in all breeds and crosses; look for them. Encourage farmers to breed them.
2. Every pig can go to market without excess fat. Encourage marketing at backfat thickness of 1.3 to 1.7 inches. Learn to recognize this degree of finish and teach farmers to do so.
3. Encourage farmers to use enough protein concentrate to grow pigs fast and reach market early.
4. Encourage buyers to recognize and buy on quality.

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FEEDING HOGS FOR MEAT 1/

Trends in consumer demands for pork and pork products are definitely toward more lean or red meat and less fat. The hog producer can do something about that through breeding methods, feeding practices, and systems of management. Among other things carcass quality is influenced by the age and weight of the pig. Dry lot feeding, pasture feeding, rate of grain feeding, and kinds of feed fed, all influence carcass quality. What are some of the feeding practices that influence carcass quality?

According to Crampton, the experience of over 30 years marketing hogs on a bacon quality basis in Canada has demonstrated that the most common factor involving grade is the proportion of fat to lean in the carcass. More carcasses have been penalized for over-finishing, that is, a high ratio of fat to lean than for any other reason. As a result, the efforts of the hog industry have been directed towards producing bacon carcasses with a low proportion of fat. Brugman states that the carcass quality of an animal is the result of the interaction of its genetic capabilities with its environment. The plane of nutrition on which the animal is raised constitutes a large part of the environmental effect.

Mansfield and Trehane in 1935 reported on an experiment in which one-half of the pigs were full-fed and the other half were fed on a restricted diet. The pigs on the restricted diet consumed less feed per unit of gain and yielded a higher percentage of carcasses that graded A and B. McMeeken and Hammond in 1940 reported on a rather unique experiment; the pigs were divided into four groups and fed as follows: the first group was full-fed for the two periods, the second group was full-fed part of the period and then limited fed, the third group was limited fed for the first part of the period and then full-fed, and the fourth group was limited fed during both periods. They found that the different methods of feeding had an important effect on the type of carcass produced. In proportion of muscle and fat, the third group which was limited fed during the first part of the period and then full-fed had the least muscle. The group which was full-fed both periods had a greater proportion of muscle than the aforementioned group and approached this group in composition of muscle and fat. The fourth group which was limited fed throughout had a minimum of fat but the lean was not well developed. The group which was full-fed for the first part of the period and limited fed thereafter had the proportionately best developed muscle and a minimum of fat.

McMeekan also found that the proportion of top grade bacon carcasses was raised from 30 to 90 percent, in actual practice among British farmers, by slowing down growth rate during the last five or six weeks of the feeding period by restricting feed intake. This increase in carcass quality was invariably associated with a decreased proportion of fat to lean. Winters, et al. in 1949 found that swine fed a restricted diet throughout yielded the leanest carcass. In this experiment conducted by Winters, et al. 80 pigs belonging to the Poland China, Duroc, and Chester White

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1/ Presented by Byron L. Southwell, Head, Animal Husbandry Department, Georgia Coastal Plain Experiment Station, Tifton, Ga., at the Interregional Livestock Production and Marketing Conference, June 14 to 17, 1954, Raleigh, N.C.



breeds of hogs were assigned to four lots and fed as indicated: Lot 1, self-fed the entire feeding period; Lot 2, self-fed until the pigs weighed 125 pounds, then the feed was restricted to 3 percent of body weight; Lot 3, the feed was restricted to 3 percent of body weight until the pigs weighed 125 pounds, then it was self-fed to the finish; Lot 4, the feed was restricted to 3 percent body weight for the entire feeding period.

Each hog was slaughtered as close as possible to a live weight of 215 pounds. Lot 1, the full-fed group, yielded the fattest carcasses and Lot 4, the restricted group, yielded the leanest carcasses. Lots 2 and 3 yielded carcasses with essentially the same degree of fatness. As might be expected, the data on percent of five primal cuts (ham, picnic, Boston butt, loins, and bellies) is in reverse to that of the percent of fat cuts; Lot 4, yielded the highest percent, Lot 1, the lowest, with Lots 2 and 3, falling in between with essentially the same yield. If a high percentage of the five primal cuts and a low percentage of fat cuts were the only prerequisites to a superior carcass, then Lot 4, would excel in carcass quality. Firmness of texture and fineness of flavor are other attributes of a superior carcass. Detailed data were not gathered on these characteristics by Winters, et. al. but observations were that the meat of Lot 4, lacked in firmness and was somewhat coarser in texture than that of Lot 1.

Brugman in 1950 reported data from a study of the relationship between the nutrition and the improvement of animals for meat production through breeding. This study was started in 1947 and will continue for approximately ten years. The animals studied originated as crossbred animals from five groups of relatively unrelated Chester White gilts; each group consisted of five females and was bred to a different Danish Landrace boar. The litter of each female at 8 weeks of age was divided equally and at random and in this manner, two lines of swine were established which on the average are expected to be genetically similar. One line is on full-feed (self-fed); the other line is on 70 percent of full-feed. At 150 pounds the animals are indexed, taking into account fertility, survival and rate of gain. The highest indexed animals are saved for breeding purposes. Animals not used as breeding stock are then full-fed until they weigh approximately 200 pounds. In this manner a full-fed line for both periods and a limited fed line up to 150 pounds, full-fed from there on were established. The carcass data for this study were gathered from these animals. Body measurements of the live animals at 150 pounds were taken. Brugman found no significant difference in the body measurements between the full-fed and the limited fed lines. The limited fed group required from 56 to 67 days longer to reach 150 pounds body weight. Limiting the feed intake of swine to 70 percent of full feed until the animals reach 150 pounds did not effect the body measurements at that weight. The number of days required to reach 150 pounds was significantly greater between levels of feeding. The carcass qualities of swine can be changed by limiting the feed intake to 70 percent of full feed up to 150 pounds and full-feeding from then on until the animal reaches approximately 220 pounds live weight, as indicated by a significantly higher percentage of total five ~~trimmed~~ primal cuts and lower percentage of total lard produced by the line which was limited fed up to 150 pounds and full-fed thereafter. This group produced the leaner carcass than did the group full-fed.



In 1944, a long term study of nutritional factors effecting bacon carcass characteristics was undertaken by Crampton and his co-workers in Canada. One hundred and twenty purebred Yorkshire pigs were weaned at 56 days of age and started on test at initial weights of 35 to 40 pounds. During the growing period, from 35 to 110 pounds live weight, all pigs were full-fed at 16 percent protein ration consisting of barley and a suitable protein mineral supplement. During the finishing period, from 110 pounds to a market weight of 200 pounds, the same ration was fed except that the level of protein was reduced to 13 percent. Half of the 60 pigs from each farrowing season, divided equally as to sex, were restricted in feed intake during this latter period to approximately 75 percent of that consumed by the full-fed group, while the remaining animals continued on full feed. Pigs were marketed individually as they reached 200 pounds live weight. Following slaughter, each carcass was graded and measured by Canadian government graders.

The average daily gain of the four groups of pigs up to the weight of 110 pounds were very similar and were normal according to expected gain figures for pigs of these ages and weights. However, from 110 pounds to market weight, the effects of restricted feeding were in evidence. The results of feed restriction on the pigs was an average reduction in growth rate of 0.45 pound per day during the last 90 pounds of gain -- sufficient to cause an increase in the total feeding period of about two weeks. As a consequence of reduction in fat, there was a significant change in carcass grade. For the full-fed pigs 58 percent graded A whereas 70 percent of the comparable pigs on restricted feed intake attained this grade. It should be noted that unless the restriction in feeding can result in a decrease in growth rate from a normal 1.70 pounds per day to about 1.25 pounds per day (a reduction of roughly 25 percent), there is not likely to be any practical effect of the restriction of feed intake in carcass grade. Crampton concluded that a restriction of feed intake during the finishing period increased the quality of the hog carcass for bacon by reducing fat deposition during that period. The actual size of the muscle area in the bacon cut was increased as well as the percentage of lean.

In practice, uniform restriction of feed intake for hand-fed groups of pigs is difficult, and impossible if self-feeding is carried out. It would appear that reducing growth rate in pigs during the finishing period could be accomplished more conveniently by reducing the useful energy portion of the ration. Crampton surmized that the latter reduction presumably could be effected by the introduction into the ration of feeds high in crude fiber. In 1954, Crampton reported an experiment designed to study the effect of the addition of various fibrous feeds such as alfalfa, wheat bran and oats to the hog finishing ration, on rate of gain, feed intake and carcass quality. Crampton found that the addition of either 25 or 45 percent wheat bran to a ration, the basal portion of which consisted of barley, resulted in a considerable improvement in carcass quality. In comparing the 25 and 45 percent levels of bran additions to the ration, the small reduction in proportion of fat to lean in the carcasses on the 25 percent level was accompanied by a non-significant decrease in rate of gain, and by a similarly longer feeding period. On the other hand, the large reduction in proportion of fat to lean in the carcasses on the 45 percent level was accompanied by a significant decrease in rate of gain, and by a significant increase in length of feeding period. When wild oats were added at levels of 17 and 25 percent to a ration consisting of barley plus protein mineral supplement, carcass improvement was noted only in the higher level



of wild oat addition. A significant decrease in shoulder fat and a significant increase in percentage lean in the bacon rasher were found for the ration containing 25 percent wild oats. Rate of gain, feed intake and length of feeding period were not effected at the 25 percent level. The proportion of fat to lean was unchanged in the carcasses of pigs fed the ration containing 17 percent wild oats. A non-significant increase in rate of gain of these pigs resulted in a significantly shorter feeding period. Crampton and co-workers have offered no explanation for the improvement in carcass quality when the ration contained 25 percent wild oats when it was obvious that this improvement of carcass quality was not directly associated with the decreased rate of gain. Presumably other factors inherent in the specific ration combinations were exerting an effect on the extent of fat deposition in the body.

In 1950, Smith, et al., of Tennessee, conducted studies involving full and limited feeding on pasture with and without protein supplement. A total of 188 pigs including Hampshires, Hampshire-Duroc crossbreds, and Landrocs were fed in spring 1949 and winter 1950. Feed intake of limited fed pigs was regulated on the basis of a percentage body weight. Pigs which averaged 80 pounds in weight when placed in the following lots: Full-fed dry lot, full-fed pasture, 80 percent of full feed on pasture, and 60 percent of full feed on pasture made average daily gains of 1.56, 1.62, 1.40, 1.18 pounds and consumed 432, 373, 340, and 314 pounds of feed per 100 pounds of gain respectively. Complete carcass data were obtained on all pigs. Back fat thickness of carcasses in full-fed lots was greater than the limited fed lots. Carcasses from full-fed lots graded slightly higher according to U.S.D.A. proposed standards than those in limited fed lots. The full-fed lots had a higher percentage of excessively fat carcasses. Carcasses of pigs fed 60 percent of a full feed on pasture were lacking somewhat in quality while 80 percent of full feed lots produced an acceptable type of carcass.

In tests conducted for three years at the Georgia Coastal Plain Experiment Station, Southwell and McCormick found that 69 pigs with average initial weights of 120 pounds made 1.69 pounds daily gain on cracked shelled corn while comparable pigs on ground snapped corn (corn, cobs and shucks) made daily gains of 1.21 pounds. Carcass grades were not determined but based on observations, the pigs receiving cracked shelled corn were fatter than those fed ground snapped corn. The feed requirements per 100 pounds gain were 386 pounds of cracked corn and 64 pounds of supplement as compared to 586 pounds of ground snapped corn and 100 pounds of supplement.

During the 10-year period, 1936 to 1946, 771 pigs were fed from weaning to 216 pounds on oats pasture with a full-feeding of corn and protein supplement while 153 pigs from the same litters were full-fed in dry lot (Southwell and McCormick). The pigs on pasture made daily gain of 1.34 pounds while those in dry lot made 1.36 pounds. The pigs on pasture consumed per 100 pounds gain 341 pounds of corn and 46 pounds of supplement while those in dry lot consumed 368 to 64 pounds, respectively. In these tests, pastures reduced grain and supplement consumption only about 7 percent. Carcass grades and back fat thickness were determined on these pigs. On the average the pigs in dry lot were some fatter than pigs on grazing. The back fat thickness was a little greater and the carcasses were some firmer than those from pigs on grazing. Based on carcass grades at the



time there was little difference in the two groups. It was noted in these tests and others conducted later that green grazing has a tendency to produce some softer carcass than dry lot feeding.

Average results of five experiments at the Tifton Station show that pigs with initial weight of 125 pounds when full-fed corn and protein supplement on clover pasture made as good daily gains (1.95 pounds) as comparable pigs in dry lot. There was little difference in total feed consumption (corn and supplement) per 100 pounds gain. Comparable pigs on pasture, fed daily 60 percent the amount of corn and supplement consumed by the full-fed group, gained 63 percent as fast and had a 14 percent better feed efficiency (corn and supplement) but were about 45 days longer reaching 220 pounds.

At the Tifton Station lighter pigs (initial weight 63 pounds) on oats or Abruzzi rye pasture, full-fed corn and protein supplement gained 13 percent faster and had a 3 percent better feed efficiency (corn and supplement) than comparable pigs in dry lot. Similar pigs on comparable pasture fed daily approximately 60 percent the amount of corn and supplement consumed by the full-fed group gained 64 percent as fast but had an 11 percent better feed efficiency. In all these experiments observations were that pigs in dry lot were fatter than those on pasture and those on full grain and pasture were in higher condition than those on limited grain and pasture.

A series of tests was begun at the Georgia Coastal Plain Experiment Station in 1936 and continued for nine years to determine the amount of pork that could be produced per acre from the various hogging-off crops adapted to the Coastal Plain area of Georgia and to determine the possible net return from such practices. As much emphasis was placed on the sequence of crops as on the value of the individual crops in the year-round system. In these tests, grain crops were hogged-off from May 6 to the following March 31.

Most of the pigs used in the hogging-off tests were grown at the Station. When necessary, good, thrifty, 80 to 130-pound pigs were purchased. One group of pigs was used to hog-off the fall and winter crops. As one crop was hogged-off the pigs were placed on the succeeding crop. Protein and mineral supplements were fed to the pigs while hogging-off all crops.

Small grain was hogged-off during May and June. Small grain produced an eight-year average of 306.30 pounds of pork per acre. Oats, wheat, and rye were compared for three years and gave an average yield of 342.77 pounds of pork from oats, 318.38 pounds of pork from rye, and 215.72 pounds of pork from wheat. When shelled corn was fed to pigs while hogging-off small grain, the pigs put on an additional pound of gain for each 2.85 pounds of corn consumed.

Early dent corn hogged-off from average dates of July 7 to August 29 produced an eight-year average of 501.63 pounds of pork per acre.

Corn and Spanish peanuts interplanted were hogged-off from average dates of August 17 to November 13 and gave a three-year average of 541.72 pounds of pork per acre. Spanish peanuts alone produced a three-year average of 342.96 pounds of pork per acre as compared to a four-year average of 314.13 pounds of pork from Spanish peanuts and Grohoma sorghum.



Corn and mature soybeans were hogged-off from average dates of September 18 to October 25. A seven-year average gave 305.20 pounds of pork per acre. The mature soybean seed were not very palatable.

Runner peanuts is one of the most important crops hogged-off in the Coastal Plain of Georgia. For seven years, runner peanuts were hogged-off between the average dates of November 28 and February 19. The average yield of pork per acre from hogging-off the nuts was 361.35 pounds. Peanuts produce soft pork.

Sweet potatoes were hogged-off during the seven years tested between the average dates of November 28 and February 21. The sweet potatoes made an average yield of 192.36 bushels per acre and produced 457.42 pounds of pork per acre. Sweet potatoes produce a very firm carcass--more so than corn.

During the eight years that regular field corn was hogged-off between the average dates of November 29 and February 5, it produced an average of 358.28 pounds of pork per acre. Corn deteriorated very little when left standing in the field during the winter but when hogged off in the late winter the birds consumed quite a quantity of grain that otherwise would have been eaten by the hogs.

It is suggested that for the average farmer a practical sequence of crops could be (1) mature oats for hogging-off during May and June, (2) early dent corn for hogging-off during July, August, September, and October, followed by (3) either runner peanuts or sweet potatoes to be hogged-off in November, December, and January, with (4) field corn available during February and March.

Among the advantages of hogging-off crops is the saving of harvesting and feeding the crop back to the pigs. Crops can be used in the system that the cost of harvesting would eliminate from the system. Swine sanitation is one of the main advantages of hogging-off crops. With the growing demand for less fatty carcasses and a greater percent of lean or red meat, the hogging-off of crops has an additional advantage.

Hogging-Off Crops  
Crop Yields and Pork Production Per Acre

Crop	Years included in experiment	Crop yield	Live weight gain (pounds)	Average daily gain (pounds)
Mature small grain (oats, wheat and Abruzzi rye)	6		275	.80
Early dent corn (summer)	8	38 bu.	502	1.38
Sorghum and Spanish peanuts	4	1083 lbs. 684 lbs.	314	1.05
Corn and Spanish peanuts	3	34 bu. 728 lbs.	542	1.48
Corn and soybeans	7	27 bu. 516 lbs.	305	1.42
Runner peanuts	7	1934 lbs.	361	1.31
Sweet potatoes	7	192 bu.	457	1.01
Corn (fall and winter)	8	40 bu.	358	1.85



In general, the pigs hogging-off these various crops made slower gains than comparable pigs in dry lot on corn and protein supplement. While carcass data were not obtained from these pigs hogging-off crops, it was observed that on the average they were never as highly finished as comparable pigs in dry lot. Therefore, following a system of hogging-off crops should produce carcasses less fatty and of higher quality than if pigs were full fed in dry lot or in small areas on green grazing. Pigs hogging-off interplanted corn and soybeans ate the corn first and the soybeans last. Often the pigs were fatter when they had finished hogging-off the corn than some three or four weeks later when they had finished the soybeans. On these two interplanted crops the rate of gain was some slower during the latter part of the period and of course the diet was quite different from the first part of the period when they were eating corn and some soybeans.

Apparently carcass quality can be influenced by feeding and management in several ways.

1. Limited grain feeding during the last part of the fattening period (from approximately 150 pounds live weight).
2. Pigs fattened on pasture produce leaner carcasses than when fattened in dry lot. Limited feeding on pasture produces a relatively leaner carcass than limited feeding in dry lot.
3. Hogging-off crops reduces somewhat the rate of gain and causes the pigs to exercise more, both of which tend toward a less fatty carcass.
4. Pigs hogging-off crops require some more feed per pound of gain than when dry lot fed but the practice eliminates harvesting and some feeding costs.
5. Hogging-off crops makes for better sanitation practices.
6. Fattening pigs on pasture often does not save enough grain per pound of gain to pay for the cost of producing the pasture but the practice does encourage sanitation and good health.

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# PRODUCTION COSTS ON HOGS DIFFERING 1/ IN CARCASS VALUE

The belief is all too common among hog producers that a fat type of hog, even though it yields an undersirable carcass, is cheaper to raise than a meaty type of good carcass hog. This is one of the first problems that faces our extension men in promoting a meat-type hog production program. To disprove this belief that meaty hogs are inefficient gainers, data is presented on feed costs and carcass values obtained in record-of-performance tests. During the last four years in the Oklahoma project of the Regional Swine Breeding Laboratory, we have been conducting feeding and slaughter tests on hogs from a variety of lines and crosses. These different lines of breeding have exhibited marked differences in carcass values. With respect to feed costs on groups differing in carcass merit, I believe that our results are in general agreement with those obtained at other experiment stations. I will confine my remarks, however, to four tests at the Oklahoma station.

In these tests none of the carcasses were graded. The index used for carcass merit was the carcass value per hundred pounds of live hog as based on cut-out yield and wholesale prices for pork cuts and trimmings. Hogs in each test were fed and handled alike. They were weighed off the feeding test individually at final weights near 210 or 225 pounds (depending on the test). Shrunk live weights were obtained on the hogs after they had been off feed for 18 hours. Yields of the different cuts were calculated as percentages of the shrunk live weight of the hog. Feed cost per 100 pounds of gain on a standard ration (which may have varied from test to test but was the same for all hogs in a particular trial) was used as a measure of production cost.

## Test 1

In the fall of 1950 a barrow and a gilt from each of 12 litters were fed on the same ration from weaning to 225 pounds weight. Seven different lines of breeding were represented in these 12 litters as shown in Table 1. Although the numbers are limited, marked hereditary differences in carcass value are indicated and there appears to be little indication that the high carcass values are associated with increased feed costs. This is perhaps best illustrated by comparing the group averages in the last two lines of Table 1. Groups 1, 2, and 3 were averaged together because all lines involved were from the Duroc breed and have been characterized in the past by overfat carcasses. Groups 4, 5, 6, and 7 were averaged together because they were from line 9 of the Beltsville No. 1 breed or were crosses of this line with other strains. There was a difference of 94 cents in carcass value per 100 pounds of live hog but a difference of only 10 cents in feed cost per 100 pounds gain.

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1/ Presented by J. A. Whatley, Jr., Professor, Animal Husbandry Department, Oklahoma A. & M. College, Stillwater, Okla., at the Interregional Livestock Production and Marketing Conference, June 14 - 17, 1954, Raleigh, N.C.

## Test 2

Data which has more direct bearing on carcass value and feed cost are shown in Table 2. In the spring of 1951, 23 linecrossbred 8 x 9 litters were placed on record-of-performance test at Stillwater. The following spring 22 linecross T X 3 litters were placed on test. For these tests four average pigs from each litter (two barrows and two gilts) were fed a standard ration from weaning to 210 pounds weight. Feed records were kept on each litter. From each litter one barrow and one gilt were selected at random for the slaughter test. The 45 litters were divided into six classes on the basis of the amount of feed required to produce 100 pounds of gain. These classes are listed in Table 2 in the order of increasing feed cost. The relation between feed cost and carcass value was very small. There was a slight tendency for the litters making the most economical gains to produce slightly more valuable carcasses. The first three classes had an average carcass value per 100 pounds of live hog of \$19.25 and an average feed cost per 100 pounds of gain of \$11.92. The advantage over the last three classes was 25 cents in carcass value and \$1.18 in lower feed cost.

## Test 3

From 1950 through 1952 performance tests were conducted at the Fort Reno station on crosses of a number of different lines and breeds. The following breeds were represented in these crosses: Chester White, Duroc, Hampshire, Poland-China, Beltsville No. 1, Minnesota No. 1, Minnesota No. 2, Montana No. 1 and Landrace. Each breeding group was fed separately and a minimum of 10 representative barrows from each group were slaughtered at the Wilson and Company plant in Oklahoma City. Certain carcass measurements and the weight of the primal cuts were obtained on each hog. Although the carcasses were not graded at slaughter, an arbitrary grade based on backfat thickness was placed on each group for this study. Breeding groups that averaged less than 1.8 inches backfat at a live hog weight of 210 pounds were called No. 2 carcasses. These groups came from crossing boars of meat-type breeding with sows of overfat type breeding. Those breeding groups whose carcasses averaged over 1.8 inches backfat were classed as No. 3 or overfat carcasses.

Even with this rather crude classification the value of the primal cuts per 100 pounds of live hog was 69 cents greater for the groups with the No. 2 carcasses than the groups with the No. 3 carcasses (Table 3). The difference in feed cost per 100 pounds of gain was only 12 cents, but it was in favor of the breeding groups producing the No. 2 carcasses. The backfat thickness was 1.7 inches and the carcass length was 29.1 inches for the No. 2 carcasses. This was .4 of an inch less backfat and .8 of an inch more length than the No. 3 carcasses.

## Test 4

In the fall of 1953 at Stillwater 25 test litters were fed from two different lines and the reciprocal crosses between them. Line 8 is a Duroc line that can be classified as an overfat carcass line with the backfat thickness on 210 pound pigs averaging 1.5 inches or less. A comparison of



the carcass values and feed costs for these two lines and their crosses is presented in Table 4. Line 9 had a carcass value per 100 pounds of live hog of \$26.80 which was \$1.45 greater than the carcass value for line 8 and 58 cents greater than the carcass value for the cross. Line 9 and the 8 X 9 cross produced slightly more economical gains than line 8 which had less desirable carcasses.

### Summary

From studies of performance testing data including 497 carcasses from pigs of quite variable breeding there was no evidence that a pig yielding a desirable carcass is an expensive pig to produce. Desirable carcass pigs of meat type breeding can be produced at least as economically as those pigs that are too fat for desirable carcasses at a market weight of 210 to 215 pounds.

Table 1. A comparison of the feed costs and carcass values of seven different breeding groups (Stillwater, 1950)

Group No.	Breeding	No. Litters	No. carcasses	Carcass value per 100 lbs. live hog, \$	Feed cost per 100 lbs. gain, \$	Difference
1	T	2	4	22.20	11.66	10.54
2	T X 3	2	4	22.40	11.38	11.02
3	8 X T-3	2	4	22.82	11.20	11.62
4	T X 9	2	4	23.17	11.84	11.33
5	Duroc X 9	1	2	23.83	10.57	13.26
6	Minn.1X9	2	4	22.73	10.98	11.75
7	9	1	2	23.91	12.64	11.27
Av. of grps. 1, 2 & 3				22.47	11.41	11.06
Av. of grps. 4, 5, 6 & 7				23.41	11.51	11.90

Table 2. The relation between feed costs per 100 pounds gain and carcass value per 100 pounds live hog on 45 linecross litters (Stillwater, 1951, 1952).

Class	No. litters	No. carcasses	Carcass value per 100 lbs. live hog, \$	Feed cost per 100 lbs. gain, \$	Difference
1	4	8	19.38	11.38	8.00
2	12	24	19.23	11.77	7.46
3	11	22	19.23	12.28	6.95
4	8	16	19.16	12.78	6.38
5	7	14	18.78	13.18	5.60
6	3	6	19.06	13.79	5.27

Table 3. A comparison of the feed costs and carcass values of No. 2 and No. 3 grade hogs (Ft. Reno 1950, 1951, 1952).

Carcass grade	No. Hogs	Value of Primal cuts per 100 lbs. live hog, \$	Feed cost per 100 lbs. gain, \$	Difference
# 2	176	20.01	11.41	8.60
# 3	110	19.32	11.53	7.79

Table 4. A comparison of the carcass values and feed costs of lines 8, 9 and their reciprocal crosses (Stillwater, 1953)

Line	No. litters	No. carcasses	Carcass value per 100 lbs. live hog, \$	Feed cost per 100 lbs. gain, \$	Difference
8	6	18	25.35	11.12	14.23
8 X 9	16	44	26.22	10.65	15.57
9	3	11	26.80	10.88	15.92



THE OUTLOOK FOR LIVESTOCK AS IT RELATES TO  
EXTENSION PROGRAMS

1/

I have two objectives in this talk today. I will review the outlook for meat animals as it appears to us in the Agricultural Marketing Service, and I want to suggest ways and provide some materials for effectively presenting economic outlook information on livestock.

Economic information should not be purely academic and it should not be sterile. It is said that art exists for its own sake; economic outlook data do not. Knowledge of economic trends has many functions. It can help the individual producer improve his management and marketing. This is foremost. But its educational value reaches farther. It can be an aid in wise determination of farm policy. And it can itself be an agent of stability in agriculture. In livestock this is particularly true. Variability in livestock production and prices has proved a persistent disorder. Informed decisions by producers, based on an understanding of economic trends, will reduce the fluctuations affecting the livestock industry.

Our job in the outlook activity of the AMS is to make basic economic information available. The State Extension Services are charged with adapting and developing that information and with getting it to the individual farmer. The intermediate stage between our basic reports and their application is wide. It requires much analysis and interpretation. We try to provide materials that will help. Many State specialists do the same. I will refer to a few such studies, as illustrations. As I do not attempt a complete bibliography, please do not feel neglected if your work is not noted here. 2/

(Mr. Breimyer's complete talk, including charts, has been sent to State specialists.)

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1/ Presented by Harold F. Breimyer, Agricultural Economist, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.

2/ However, we would be pleased to receive copies of State studies in this field.

## IMPACT OF THE LIVESTOCK SITUATION - NORTHEASTERN STATES 1/

The production of beef cattle, sheep and swine are not major enterprises on a large number of farms in the northeast. Most of the farms are too small to make an extensive livestock program the major source of income. Consequently the northeastern producer does not feel the drastic changes in livestock prices as much as a western or mid-western farmer.

Many of our farmers are using a beef herd, flock of sheep or a few hogs to supplement other farm income of possibly a job in town. Cash crop producers, fruit growers and poultrymen are good examples of farmers who are interested in general livestock production as a supplemental income.

Even in the face of low beef prices practically all States in the Northeast increased their beef numbers during the past year and will probably continue the upward swing for a number of years to come. This is being brought about because of the need to market homegrown roughage with a minimum of labor. The recent drop in milk prices may encourage some farmers to go to general livestock for at least a part of their income.

Interest in sheep production is increasing somewhat. Although hog numbers have declined, the increase in number of corn pickers and the availability of superior hybrid corn varieties have encouraged a number of farmers to market grain through hogs. Probably the decrease in hog numbers has resulted from the "one or two sow" farmers going out of the hog business - not the regular hog producer. The new State garbage cooking laws have no doubt discouraged some of the small producers. This should be counteracted by the increased efficiency of the larger producers in the new cooking program.

Although the production of beef, pork and lamb is only a part time program as far as the northeastern farmer is concerned, the producer of meat animals in this area, the same as anywhere else, is going to have to improve his efficiency in production and marketing to counteract the lower prices that may come about as a result of increased production of red meat.

We must improve our breeding, feeding, management and marketing programs. There is no place on our farms for a low-quality beef cow, scrub ewe or over fat type sow. We must use good sires and cull our females closely. Our pastures must be improved; better quality roughage must be produced for winter feeding.

It is more important now than at any other time that we keep our costs and labor requirements down. We must keep in mind that a general livestock program can be maintained with a small investment in buildings and equipment.

1/ Presented by Myron Lacy, Professor, Animal Husbandry Department, Cornell University, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.



Producers must wean a high percentage calf-crop, large litters of pigs and more than a lamb per ewe. Those selling feeder calves must get as many pounds as possible on their calves and offer the buyer top quality. Farmers must realize that we are no longer in a "seller's" market but on the contrary the buyers are in the "driver's seat."

Producers should become better acquainted with market grades which will assist them in interpreting market reports and help guide them in knowing when to market their stock. Beef cattle feeders should be conscious of the fact that certain grades of cattle will sell at better prices in some seasons of the year than at other times.

The above remarks can be briefly summarized as follows: although beef, sheep and swine production are only part time programs on Northeastern farms and even though the returns may not be as great as in some of the more favorable post-war years, meat production in this area will probably continue to increase at a favorable rate. This is thought to be especially true of beef cattle numbers and possibly sheep. This increase will need to be accompanied with a greater emphasis on efficiency of production and marketing through better breeding, feeding, management and marketing practices.

THE IMPACT OF THE LIVESTOCK SITUATION  
IN THE SOUTHERN REGION

1/

The current and long range shifts in southern farming reflect radical changes in the use of land and systems of farming. More emphasis on livestock production has been characteristic of the impact.

The cattle business, which has been expanding in the southern region for almost 20 years, represents the most important development.

Hog and sheep numbers have either decreased or about held their own since 1945.

Horse and mule numbers have declined sharply in all the southern States for 15 years or more.

In Mississippi, cattle numbers were 8 percent larger on January 1, 1954, than the year before, sheep were 6 percent higher. Hog numbers, trending downward the last 10 years, declined 22 percent in 1953. Horse and mule numbers in Mississippi were the smallest on farms since 1886.

The droughts of 1952-53, coupled with the price break in cattle in that period, were expected to result in reductions in cattle as well as hogs and sheep. In the case of cattle, the result was almost the opposite. Cattle increased each drought year in the southern area and sheep numbers were up last year in several States.

One chief factor influencing trends in the livestock situation has been the pressure of cotton acreage controls. The diversion of acres under this program has resulted in increases in cattle and sheep numbers, not hog numbers. The class of land diverted from cotton production has been more suitable for grass and forage production, and these meet the requirements of cattle and sheep, than to supply resources for hog production.

If recent corn crops had not been so severely curtailed by drought, an upward trend in hog production could have been expected locally.

Those who deal with the problem of the long term farming trends in this area, believe that regardless of cotton acreage controls, livestock production will continue to gain. They feel that without controls, the center of cotton production would shift westward at an accelerated rate.

As that occurs, the south would, without doubt, give more emphasis than ever to its livestock enterprises. Cattle production under such conditions could be counted on to shift even more to the south.

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1/ Presented by Paul F. Newell, Extension Animal Husbandman, Mississippi State College, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



There is a viewpoint among a segment of old-line cotton producers who know how to grow cotton and have the resources for same, but who are less experienced in the field of livestock production, that the stated trend to livestock may not continue.

But the view that livestock production is a permanent business which will continue to grow is shared by a vast majority of farmers in the south. This group believes that unexplored potentials in meat animal production exist in the south. Steer feeding, for instance, is expected to expand considerably in the delta area as a phase of the cattle operation. The delta is a feed producing area and steer management can be made to fit in with the cotton producer's business. Cow herds, too, may increase more in that area.

The increases which have occurred in cattle and sheep numbers in the face of the drought situation underscores the philosophy among southern farmers that they must utilize the various phases of the livestock business even more fully to employ their land, labor and capital resources to best advantage.

Farmers in the south are improving their livestock operations. The approach being made indicates more stability of purpose, more permanency in this phase of farming. They are:

1. Growing more feed. This is true of grass, silage, hay and general forage production. So farm corn production has not increased much. These facts indicate why more expansion has been seen in cattle and sheep rather than hog production in our area. This overall feed growing effort is basic. It means success to those livestock producers who are working on this basic problem.
2. Livestock producers are improving their herds and flocks. This is in evidence on every hand. The larger number of registered herds and flocks insures a source of seed stock being used to improve commercial production.
3. The general management of herds and flocks is being improved. Southern farmers are learning more "know-how."

As these trends gain momentum, producers will be able to devise better production patterns and make specific improvement. They can then do better marketing. They can make progress in spite of price restrictions which are sure to be met.

All of this indicates that the shift which began some years ago in the south toward a broadened livestock business will continue because producers see the need of a safer balance between crop and livestock production and a more profitable basis for utilizing land.

As Extension workers, we must meet a new challenge.

The southern livestock producer requires a new kind of guidance.

We must give him more aid in the selection of types of production. Often a number of alternative methods are suitable. It's important that the producer select the one that fits his resources.

The Mississippi publication, Patterns for the Commercial Cattle Producer, No. 280, June 1954, is a recent effort we have made to give cattle producers in our area a more dependable insight into the problems of management.



# THE IMPACT OF THE LIVESTOCK SITUATION IN THE SOUTH ATLANTIC STATES 1/

In spite of prospects for somewhat lower livestock prices, the livestock industry in the south is likely to expand. This rather positive statement is based on several factors which will only be mentioned.

1. Allotments on major crops and multiple compliance provisions leave livestock as about the only alternative for maintaining and increasing desperately low incomes and levels of living.
2. New technology in feed and livestock production is lowering the risk and increasing the profits for livestock.
3. A sharp increase in grain production which we are not organized to market efficiently as grain favors expansion of the livestock and poultry industries.
4. Industrialization is taking pressure off the land, reducing the labor force and expanding local markets, particularly for livestock products.
5. The relatively elastic demand for livestock products is promoting consumption during the period of falling prices.

In view of the prospects for increased production and lower prices, Extension livestock production and marketing programs should be modified in several respects.

1. Increased efforts should be devoted to developing and getting to farmers information which will lower production and marketing costs. Much of the time devoted in recent years to promoting expansion should now be devoted to increasing efficiency of existing and new producers.
2. Livestock producers should be encouraged to re-examine their production plans to see if they are producing the type and grade of animals which return the greatest profit. For example, many of us have encouraged the production of prime or high choice beef. Certainly all of us like to see this type of animal, yet if the markets are not so organized that the farmer receives the price differential necessary for producing this grade, we should concentrate on producing good quality animals which the market will handle at a price which will give the efficient producer a profit.
3. In many States we have devoted most of our time to promoting a single program such as a cow-calf program. Perhaps this was the right course to follow a few years ago. In view of the present

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1/ Presented by C. Brice Ratchford, Assistant Director of Extension Service, North Carolina State College, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

economic situation, however, different farmers need to follow different types of programs. The program needs to be tailored to the individual farm. Undoubtedly many farmers in North Carolina could profitably follow a grass feeding program. Others can follow a grain feeding program and still others can follow a combination of these. This makes the job of the specialist much harder. I am convinced, however, that the profit margin is going to be so small that it will be necessary for each to tailor the production program to his particular situation.

4. Since the profit margin is decreasing, the need for giving producers all of the facts is becoming increasingly important. In our enthusiasm for promoting the industry, we should not fail to point out the disadvantages as well as the advantages. We certainly need to stress the precautions that a producer needs to take in order to make the enterprise successful.
5. Increased attention needs to be devoted to marketing. We should not limit our efforts to helping farmers make better decisions on what, when, and where to market. We need to try to improve the efficiency of marketing agencies, change the market structure, and educate consumers. In part, future progress in livestock production will depend upon improvements in marketing.

In conclusion, I would like to add that I feel that the Extension Service and the Land Grant Colleges of the southern States are on the spot. This is not the first time that this State and other States have promoted livestock programs. In the past, our programs have not succeeded. We now have new information. Also the situation was never so favorable to livestock. Whether we move ahead will depend on how the Land Grant Colleges perform their mission.



## HIDDEN LOSSES IN LIVESTOCK MARKETING 1/

Losses from livestock disease, parasites and mis-handling have plagued the animal husbandryman from the domestication of the animal. Gathering accurate information of these losses and setting a course of prevention have been the much sought after goal of the livestock and meat industry. The tools of prevention are forged from the complete and accurate facts of these needless losses. With the facts, the industry, from the livestock producer to the meat packer, is able to recognize the far-reaching importance of these losses and the value of a sound program of livestock conservation.

During the period of the First World War, the need to maintain a fairly constant nutritional standard focused attention on a very vicious livestock disease, bovine tuberculosis and this threat to the nation's health was met with the establishment of the National Live Stock Sanitary Committee, in 1917. During the course of the committee's activities the recognition of the many other vast livestock losses from diseases, parasites and mishandling developed. In 1934, the livestock and meat industry cooperated in the formation of the National Live Stock Loss Prevention Board, which was to deal on an expanded plan of work to combat these losses. Livestock Conservation, Inc., formed in 1951, is the consolidation of both the National Live Stock Sanitary Committee and the National Live Stock Loss Prevention Board.

Livestock Conservation, Inc., an industry sponsored educational and research organization, promotes a national program to reduce the losses from diseases, parasite and mishandling. Long and short range programs have been developed which encompass the many groups associated with the production and marketing of livestock. The full cooperation of those in attendance at this production and marketing conference is greatly appreciated.

BRUISES: A major problem which we must face is the bruise loss. The 1953 audit of the National Livestock Bruise Survey which is being received from 71 packing plants throughout the nation shows seven percent of the cattle bruised. Total loss per head slaughtered amounts to 42 cents or an average loss of \$5.95 per head bruised. Applying these findings to the 1953 total cattle slaughtered shows the bruise loss in cattle to be approximately 9-1/2 million dollars.

The hog survey for the same twelve months period reveals seven percent bruised amounting to 10 cents per head slaughtered, or a bruise loss of over 6-1/2 million dollars for the year 1953.

CATTLE CONDEMNATION: The monetary loss from cattle carcasses condemned for various diseases and conditions on post mortem federal inspection for the fiscal year 1953 exceeded 5-1/2 million dollars, or 32 cents per animal slaughtered. Major causes of cattle condemnations are pneumonia (17 percent of total condemned); abscess-pyemia 10 percent, and emaciation 8.6 percent.

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1/ Presented by Dr. J. R. Pickard, General Manager, Livestock Conservation, Inc., Chicago, Ill., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

A spot survey by Livestock Conservation, Inc., on the ratio of cattle condemnations to slaughter showed the heaviest condemnation in the intensive dairy areas where slaughter of dairy cattle predominated. For example, the ratio reported by one packing plant in the dairy area was 1-56 compared to 1-455 in a river packing plant or 1-3300 in an eastern plant that slaughters high quality cattle.

CALF CONDEMNATION: The three leading causes of calf condemnations are immaturity, pneumonia and emaciation. Over 28 thousand calves were condemned in 1953 from all causes. Condemnation losses amount to 13 cents for every calf slaughtered under federal inspection.

SWINE CONDEMNATION: The total swine condemned for all diseases and causes on post mortem in 1953 under federal inspection was 117,000 head, comparable to the total 1953 pigs saved in Massachusetts. The estimated monetary loss from condemnation exceeds 5-1/2 million dollars or 10 cents for every hog slaughtered. Pneumonia ranks first as the leading cause followed by abscess-pyemia and arthritis. Various organisms or infections have a predilection for localizing in the joints of hogs. Erysipelas is a classical example.

ICTERUS: Icterus or jaundice in hogs accounts for 8 percent of the total condemned. Studies indicate the majority of icteric condemnations are the result of heavy ascarid infestation. Hogs subjected to long shipments with little feeding show the highest percentage of icteric condemnations. The theory being that lack of feed results in the ascarids migrating in the bile duct, and due to this mechanical obstruction normal bile flow is hindered. Due to this occlusion the bile enters the general blood stream.

A spot survey at packing plants located in the swine belt shows one out of 8,000 hogs condemned for icterus as compared to one out of 600 on the West Coast--hogs that have been shipped from the swine belt. One plant in the Southeast reported one out of 800 hogs condemned. The annual monetary loss for icterus, estimated to be over 1/2 million dollars, could be materially reduced if swine growers would practice parasite control. Marketing and livestock specialists are in a key position to inform livestock producers the profit to be gained from practicing parasite control.

LIVER CONDEMNATIONS: A survey by Livestock Conservation, Inc., on certain product losses in swine illustrates the need for improved swine management practices. Percentage of swine liver condemnations by packing plants in the following States are:

Minnesota	3.6 percent
Iowa	3.0 "
Illinois	4.3 "
Tennessee	13.0 "
Alabama	17.0 "
Georgia	46, 60 and 80 percent in three plants reporting.

Again swine ascarids account for the grayish spots on livers which spell heavy condemnations.



KIDNEY CONDEMNATIONS: Condemnations of swine kidneys due to kidney worms present a serious problem in the Southeastern section. Three plants in Georgia report 42, 60 and 95 percent of the kidneys condemned. This compares to an estimated 10 percent average in the swine belt. Migration of the kidney worm through the loin area and adjacent tissue results in heavy trim out of expensive cuts.

CERVICAL ABSCESES: Cervical "jowl" abscesses of swine is a disease of growing concern to meat packers, swine producers and veterinarians. These abscesses vary in size from a large marble to an orange. They are far more common in swine originating in the middle west or hog belt. While the condition does not cause any death losses or does not apparently affect the weight gains in troubled herds, the high percentage of heads condemned at slaughtering establishments is of such economic importance as to warrant additional research.

A spot check by Livestock Conservation, Inc., with a number of packing plants throughout the country shows condemnation for cervical abscesses in the swine producing belt to be running as high as seven percent of the total slaughter. This condition causes condemnation of the entire head which at the time of the study approximated 1.50 in value.

Control measures have been ineffective.

SHEEP CONDEMNATIONS: The three major causes of condemnations in sheep are emaciation, pneumonia, and caseous lymphadenitis (pseudotuberculosis). Internal parasitism in sheep is a primary cause of emaciation and plays a significant role in lowering the resistance of the host, making it a ready subject for pneumonia.

The people in agricultural education have an excellent opportunity to be of service to their communities by utilizing this type of valuable information. Much of the economic stability of an agricultural community depends on the well being of its livestock enterprises. The largest single source of farm income is from the sale of livestock and their products. It is only logical therefore to pay particular attention to the health and future production of the community's livestock.

As educators, the opportunity to counsel and direct the important phases of sanitation, parasite control and proper livestock handling is an advantage to capitalize upon. The simple, common-sense approach of presenting accurate information on these costly livestock losses will pay dividends to the individual, his community and to our nation.

KEEPING PARASITES UNHEALTHY 1/

Several years ago when I was on Uncle Sam's payroll a large number of us in what was then called the Bureau of Animal Industry were involved in the writing and editing of the U.S.D.A.'s Year Book for 1942 entitled "Keeping Livestock Healthy". I want to say right here - speaking now as a taxpayer employed in private industry - that "Keeping Livestock Healthy" was a worthy undertaking well executed. No doubt all of us attending this conference on production and marketing have referred to this publication from time to time. Because of technical progress since 1942, "Keeping Livestock Healthy" is somewhat out of date now and needs revising. Whenever and wherever I can I add my voice to the chorus of citizens from all parts of the country: Do it again; do it again; do it again.

My experience relative to that Year Book left certain impressions concerning livestock parasites, which form a background for what I'd like to say today. These impressions are:

1. For dollar figures illustrating economic loss due to livestock parasites we often had to reach into the wild blue yonder.
2. Parasitic infections, as distinct from other types of disease and from nutritional problems, are responsible for an enormous proportion of the total economic loss in the livestock industry.
3. We already have the technical know-how required to overpower many of the worst pests and thus avoid much of this loss.
4. The livestock industry as a whole does not practice what the technical boys preach.
5. The missing link in many instances is our inability to prove to the individual livestock owner how much in dollars he himself can profit from practicing parasite control.

You will recognize in the sequence of the above impressions the metamorphosis of the parasitologist transplanted from biological to market research. While in the U.S.D.A. I was concerned with the life-histories of and experimental treatments for certain livestock parasites, the purpose being to bring to light facts to help others work out practical control measures. I sometimes ventured onto a farm to observe the damage wrought by parasites under natural conditions, but I was seldom concerned with the overall economic picture or exactly how much the farmer could afford to spend for parasite control.

A broader view reveals the obvious fact that it requires a full team to develop and put into practice a sound parasite control program.

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1/ Presented by D. C. Boughton, Technical Advisor, Animal Industry Products, Grasselli Chemicals Department, E. I. du Pont de Nemours & Co., Wilmington, Del., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



It takes not only animal husbandmen, veterinarians, and research parasitologists but also the manufacturers of remedies and feed supplements and the livestock owners themselves. We really cannot expect all these to put on a smoothly functioning team performance unless we make available to them certain economic and market data. May I call these "Incentive Data"? I mean specifically: What profit can the farmer expect from the use of a control agent and what size market can the manufacturer forecast?

Theoretically, general adoption of control measures can be brought about by edict, by voluntary cooperation, or by the normal operation of our profit system. In this country, we usually prefer the latter, reserving governmental control for specific cases involving the public health or threatening the survival of an industry. We resort to voluntary cooperation sometimes when such regulation isn't justified and the profit motive doesn't function. In such cases the control program often flops.

As an example of a situation in which the profit system functions well, we can take poultry coccidiosis. The biological and pathological aspects of this parasitic disease had been elucidated by research and had been on record for a quarter of a century. Likewise it had been recognized as causing economic loss. However, the disease was neither threatening to human health nor so virulent as to jeopardize the whole poultry industry, and it was not until the modern broiler raiser was hard hit that a practical control program took shape. The broiler industry operated on narrow margins and is particularly sensitive to production costs. The poultryman himself was taking the beating from coccidiosis and his book-keeping made it easy for him to measure the loss in dollars. He was in the mood to do something and knew how much he could afford to pay out to get it done. Research produced the technical answer in the form of drug therapy and prophylaxis. Manufacturers recognized the market potential, and competition for the broilerman's business produced products that are economically sound to use. Nowadays coccidiosis control is part and parcel of raising broilers, and the marginal operator who is careless about this disease is apt to be squeezed out of business. Note that poultrymen have adopted anti-coccidial agents without threat of government regulation or the need for voluntary cooperation within the industry. I believe it is fair to conclude that parasite control in this case became a general practice quickly because the drugs involved produce a profit for both the users and the manufacturers.

Now I'd like to draw your attention to another economically important parasite problem. In this instance, in my opinion, practical control is not attainable at present for the simple reason we lack a means of treating that fits into our American profit system. I refer to the cattle grub.

Long ago entomologists unraveled the complicated life-cycle of this pest. It is now common knowledge that the adult stage is a fly, that the female lays eggs on the leg hairs of the host, that maggots hatch and penetrate the skin, that they then migrate within the host and after about nine months perforate the skin of the back, that the larvae grow and then drop from the host, pupate in the soil, and eventually emerge as adult flies.

For a long time also it has been recognized that grubs cause loss all along the chain of industries linked to livestock production. A great deal of publicity has been given over the years to losses sustained by the packer, the tanner, and the leather goods fabricator. The annual tonnage of beef trimmed from grubby carcasses and sent to tank is a staggering waste. So also is the leather ruined by grubs. It is no wonder pressure has been brought to bear to reduce this waste-pressure on the cattle raiser, who is the only one in position to treat for grubs.

The cattle grub, as you know, can be killed by rotenone while its rear end is exposed through the hole it has made in the hide of its host. Upon this fact is based our present method of control. We actually have the knowledge plus the effective agent for complete eradication.

In the face of this technical know-how and measurable economic loss, I submit that we still lack an essential ingredient of a practical control program, namely, a sufficient incentive for the fellow who must actually do the treating. This of course, is the cattle raiser. Note that the rotenone treatment kills the grubs only after they have already damaged the animals receiving the treatment. The idea is to reduce the grub population so that the next year's damage will not be so great. Note also that this pest is a fly that can travel from one ranch to another. Hence, the man who conscientiously treats his cattle cannot at best expect benefits before the following year and then only provided his neighbors for miles around have carefully treated their herds also. You can readily see the difficulty - a grub eradication program requires cooperation over a large area, stimulated by a great whooping-it-up for the good of all. In my opinion, cattle grub control will boom if and when an economically sound treatment comes on the market. Such a treatment would break the cycle before the treated animal is badly injured and would make it possible for the user to grow out grub-free cattle independently of his neighbors.

The third parasite problem I wish to discuss is the gastro-intestinal nematodes of cattle. This is chosen to illustrate how the insidious nature of some parasitisms may hamper control programs. In this case, we have considerable information on the biology of these internal worm parasites, and we also have an effective drug - phenothiazine - for controlling them. The trouble has been that much of the economic drag is due to low-grade infections not easily recognized. It's almost as if we had the answer before we discovered the problem.

This is not meant to imply that heavy infections of gastro-intestinal parasites do not occur. They do occur, causing obvious disease and economic loss. The owner of a severely infected herd is usually easily convinced to treat and set up preventive measures, but, for the record, I must confess I've met some mighty stubborn owners in my time.

By and large, though, the cattlmen have been slower than sheep raisers, for example, in taking up the fight against these parasites, probably because infections in cattle don't produce as spectacular symptoms as are commonly seen in sheep. Gruesome pathology may be lacking but the economic drag is there nonetheless. This insidious attack is characteristic of many parasitisms. We raise our cattle and their parasites together in a



single operation. Our experience in cattle growth and health is actually, for the most part, in terms of parasitized animals. It's little wonder we take the latter as optimal, since we seldom can observe the full potential of non-parasitized stock.

Recent tests, however, are bringing to light the loss resulting from what has up to now been shrugged off as mild parasitism. The experiments are actually simple in design. Herds with various levels of parasitic infection are divided into two equal parts. One half is either given a single therapeutic treatment or a treatment followed by a regimen aimed at reduction of reinfection. The other half serves as the untreated, unprotected control. Weight gains of the two groups are compared. The results obtained are superior weight gains in the treated, protected groups - added beef giving a substantial profit above and beyond the cost of parasite control. In a series of tests averaging four months in length, the extra gain was one-fifth pound per head per day. In growing cattle, this bonus gain represents an extra profit of over \$10. per head per year.

A good illustration of how potential can be obscured by low-grade infection is found in swine. Recently antibiotics have been shown to promote pig growth when fed at low levels. The most plausible explanation for the beneficial effect is that the drugs, by suppressing certain types of bacteria in the digestive tract, eliminate low-grade, sub-clinical infections ordinarily present in apparently healthy pigs. The nutritionist thus happened upon a cure for a previously unrecognized condition. He got the growth boost he was looking for, but he did it by removing the drag due to an infection. The economic significance of the infection came to light only after the growth rates of treated and untreated pigs were compared.

Phenothiazine has certain special actions of particular significance in the practical control of ruminant gastro-intestinal nematodes. When fed at low-levels to sheep and cattle, it suppresses egg production of female worms and inhibits development of eggs that are passed out onto the pasture with the droppings. This suppressive effect against the non-parasitic stages of these parasitic worms make phenothiazine particularly effective in prevention. In this respect it fits our modern concept that the sensible way to control parasites is to prevent significant build-up in parasite population and thus avoid the losses from both clinical and sub-clinical infections.

This reference to prevention of parasitisms and its significance in relation to livestock production leads me to emphasize a present trend. All around us we can witness the merging of various technical disciplines in the overall effort to improve efficiency. Agricultural economics takes classical parasitology by the hand and leads the old boy out of the taxonomic woods. Dame Nutrition, whose latest ardent suitors have been antibiotics and detergents, can no longer ignore the appetites of parasites; feed manufacturers and livestock feeders alike must now calculate the feed intake of the ravenous eaters within the cattle and hogs for which they sell and buy the feed. And veterinarians, long trained to guard the health of our livestock, must now raise their sights still higher and shoot at superior production. For they can read the writing on the wall: Drugs as protectors against low-grade infection and manipulators of physiological processes can do more than bring a

herd back to the "normal health" we've known in the past - they can be used to produce better products from the herd more efficiently.

I do not have to remind this audience that livestock production is going big time. Par will hardly do these days. The going is getting tougher and tougher and we're shooting for birdies and eagles.

The kind invitation to speak on this program is especially appreciated because it shows that the folks concerned with marketing and production are aware they should be aware of parasites. May I encourage you in this interest? - For the sake of the team effort mentioned previously. It will help research workers in veterinary science, practitioners, manufacturers, and growers all along the line to have your sympathetic ear and pertinent suggestions.

By way of summary let me list some specific ways in which you can advance what I have elsewhere called the science of economic parasitology and thereby, I believe, bring us all nearer the goal of more efficient livestock production.

1. Gather and publicize dollar losses due to parasites, with special emphasis upon those losses sustained by the livestock grower on the farm. Such data can launch federal and state research and will bait industry with potential markets.

2. Recognize the insidious nature of much of our economically important parasitism. Parasitic disease is often sneaky, incubating, unseen in apparently healthy animals during the early stages of an outbreak. Furthermore, plenty of damage can be done even though a frank outbreak does not occur. An understanding of these things will engender, if nothing else, patience with those who perennially must struggle to keep parasites unhealthy and, perhaps, specific helpful suggestions as well.

3. Embrace prevention of parasitism as part and parcel of livestock production, recognizing that the real potential cannot be realized in parasitized animals.



# IRGINIA FEEDER CALF SALES ORGANIZATION

97

STATE COMMITTEE  
7 members  
Each member is elected by the sale groups in a production area. Direct promotional activities suggest certain uniform requirements to all sales.

EXTENSION ANIMAL HUSBANDMAN  
Coordinate activities  
Assist with recommendation to state committee and individual sales. Educational phase of the program such as demonstrations etc.

VA. BEEF CATTLE ASSOCIATION  
Carry on promotional activities directed by State Committee, but paid for by Individual Sales.

STATE DEPT. AGRICULTURE  
1. Grading service, on fee basis, 17¢ per head.  
2. Veterinarian: Health requirements and issuing health papers.

LIVESTOCK MARKET OPERATOR  
1. Furnish facilities, help, and in most cases, do the paying and receiving.  
2. Charge usually \$1.00 plus 1/2 of 1% per head.

INDIVIDUAL SALE COMMITTEE  
5 to 12 members of whom one is Sale Manager  
If a county sale, committee usually elected by Districts, if for several counties, one or more elected from each county.  
(Most sales getting incorporated)  
Non-stock domestic corp.  
This committee makes the Rules and Regulations for the sale, by adopting the state committee's suggestions where feasible and making other rules to meet local conditions.

COUNTY AGENT  
Assists with recommendations, carries on educational phase. Part of screening committee.

COUNTY COMMITTEE  
If more than one county is involved, each county will have a committee to promote interest and keep producers informed on regulations etc.

SCREENING COMMITTEE  
Consists of 2 producers and county agent. Visits herds prior to the sale to cull calves.

## LIVESTOCK AUCTIONS: HOW THEY CAN BE IMPROVED 1/

Auctions play a very important part in the marketing of livestock. This is very true in North Carolina and adjoining States. We have approximately 84 livestock auction markets in North Carolina, far too many. In many cases, the physical structure of the market will not allow them to handle a volume of cattle. In too many instances, the volume of cattle is not sufficient to attract packer buyers to create the necessary competition to command a fair market price for the livestock.

In North Carolina we feel that the auctions have contributed a great deal to the development of the livestock industry and that they have done a good job in moving particularly the lower grades of cattle, namely, utility, cutters, canners, and veal calves, but there has been quite a question on the better grades of beef. We in North Carolina have a large number of small killers that kill mostly the lower grades of cattle and they compete for the cattle on the smaller markets.

In a survey conducted in North Carolina in 1950, we found that the price of cattle on various livestock markets varied with the size of the market; the price variation was in favor of the larger market.

Following are a few points which were emphasized by the panel members:

1. That auctions should start at a definite time.
2. Livestock auctions sell only livestock.
3. Sanitation - (1) Pens cleaned after each sale.  
(2) Concrete pens for hogs.
4. Prevent overcrowding in pens.
5. Weights - (Preferred scales weighing cattle into auction ring.)
6. Cut down on number of auctions - 10 to 15 for entire State.
7. Pen cattle in uniform grades. Sell all cattle of one grade before selling another grade or type.

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1/ Presented by H. D. Quessenberry, In Charge, Livestock Division, North Carolina State Department of Agriculture, Raleigh, N.C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



## SOUTHERN LIVESTOCK AUCTIONS: THEIR PROBLEMS AND PROSPECTS\*

by

Jack D. Johnson, Associate Economist  
Virginia Polytechnic Institute

Local livestock auctions are the most important outlets for livestock produced and marketed in the South. Approximately 65 per cent of the Slaughter cattle and veal calves, 45 per cent of the feeder-stocker cattle, 33 per cent of the milk or brood cows, 55 per cent of the slaughter hogs, and 80 per cent of the slaughter sheep and lambs are sold through local livestock auctions. These statistics are averages for the Southern Region. <sup>1/</sup>

### Auctions Also Popular Source of Farmer Purchases

Moreover, auctions are also among the most popular sources of purchases for farmers seeking livestock as indicated by the fact that 50 per cent of the cattle, 33 per cent of the hogs, and more than 25 per cent of the breeder sheep bought by Southern farmers are purchased at auctions.

Since livestock producers usually accompany their livestock to market and remain until they are sold, prospective buyers of feeder animals or breeding stock are often able to discuss the merits and faults of a specific animal with the owner. Generally, buyers will pay higher prices for animals consigned by reputable producers who assure them privately that the animals are clean and O.K. The danger of spreading contagious diseases by animals purchased at auctions causes many farmers to avoid purchases at any type of public market. Auction operators should do everything possible to maintain sanitary conditions at the market and to exercise some kind of control or inspection over animals consigned for sale as stock animals. Anything that will dispel fears and increase confidence on the part of all parties concerned will prove profitable in the long run.

### Auctions More Popular in Certain Areas

The relative importance of auctions both as a market outlet and as a source of purchase varies not only with the kind of livestock, but also by areas within the region. However, with a few minor exceptions, local auctions not only service the largest number of producers but also handle the largest volume of animals.

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\* Presented at the Inter-regional Livestock Marketing and Production Conference, June 14-18, 1954, held at Raleigh, North Carolina.

<sup>1/</sup> Southern Cooperative Series Bulletin 26, July, 1954. The Southern Region, as used here, includes the following states: Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Estimates of the volume of livestock sold at auction as used here were derived from information secured in personal interviews with a random sample of farmers, selected to represent conditions in the South as of 1950. It is assumed that no significant changes in the pattern of marketings have occurred since that time.

Sales of cattle through terminal markets are relatively unimportant, except in the mountainous areas of Tennessee, Virginia, and West Virginia, where sizeable numbers of two and three year old grass-fattened slaughter steers are marketed.

Direct sales to packers are relatively more important in the Piedmont Area. Incidentally, sales to local dealers in that area are considerably larger than the average for the region. The fact that a large proportion of the South's packing plants are located in the Piedmont offers some explanation for their popularity in that area.

#### Auctions Outnumber Other Livestock Marketing Agencies

Undoubtedly, the major factors contributing to the success and popularity of auctions are convenience, availability, and adaptability. Auctions outnumber by a considerable margin other market outlets such as packing plants, local assembly yards, buying stations, and particularly terminal markets. For example, more than 500 local livestock auctions are in operation in the Southern Region. In contrast, there are approximately 40 posted stockyards, but only 10 are classed as public terminal markets. <sup>1/</sup> There are approximately 60 direct-buying stations in the region--mostly in the Carolinas. Although the South has a large number of packing establishments of various sizes, less than 50 operate under Federal Inspection. Livestock auctions are found in all of the major production areas and generally are more uniformly distributed throughout the region than other types of livestock markets. Their accessibility contributes greatly to their popularity--livestock producers prefer to be present when their animals are sold and to inspect those they are buying.

#### South's Livestock Industry on Sound Basis

Apparently the South's livestock industry finally has been established on a relatively firm and stable basis. The one thing that would do more to arrest or cut back the present development of livestock in the South would be the re-establishment of foreign outlets for the South's great staple crops at profitable prices. But, this possibility is not glowing with encouragement. Of course, if livestock production controls including marketing quotas are established, our present growth would be stopped or even cut back. Such controls are usually established on a historical production basis, which inevitably works to the detriment of the newer areas of production, irrespective of their relative efficiency. This means that, if livestock production controls are invoked, the South would stand to lose as a result of such action. Let's hope that such a possibility forever remains an academic speculation! Oppose the movement--should it develop!

#### Auction Operations Adapted to Southern Needs

The auction system is well-adapted to the needs of producers who sell in relatively small lots. "Off-beat" animals sell relatively good because many small traders, dealers, or speculators deal primarily with such animals. Large numbers of slaughter cattle and calves sold in the South are classed in the lower grades primarily because of the lack of finish--there are very few choice

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<sup>1/</sup> A posted stockyard is a livestock market operated under the supervision of the Department of Agriculture, Packers and Stockyards Act.



and prime steers and heifers sold at auctions in the South. Moreover, veal calves, cows, feeder cattle, as well as feeder pigs, make up a large share of the total run at most auctions throughout the year.

#### Many Sales Are in Small Lots

We often speak of "an average size producer," but this is a nebulous concept in the South because of a terrific skewness in the size of livestock producers. As an example of the skewness, 77 per cent of the Southern farmers selling cattle in 1950, sold fewer than six head, but sales by this group accounted for only 30 per cent of the total movement. In contrast, only 12 per cent of farmers sold 10 head or more, but they marketed slightly more than one-half of all cattle sold that year. Hog and lamb marketings exhibit a similar pattern, though not as pronounced.

#### Long Range Outlook for Auctions is Promising

This brief summary indicates the market outlet possibilities for Southern livestock producers, as well as the current utilization made of them. One thing stands out clearly: Local livestock auctions are the main outlets for Southern livestock.

Therefore, unless a decided change occurs in our pattern of production or unless some new technique is developed for marketing small lots more efficiently than auctions, the long run prospects for auctions are indeed quite promising.

#### OPERATIONAL EFFICIENCY AFFECTS MARKETING CHARGES AND PROFITS

First, let's take a look at operational efficiency. This phase of the auction marketing is of interest because it affects marketing charges and these charges come into sharper focus as livestock prices seek lower levels. Late last summer and during the early fall, some of our livestock auction operators found themselves in a precarious position. Their problem was how to get more out of baby calves than their normal marketing charges. The demand for such animals had virtually "dried up." The normal marketing fee was from fifty to seventy-five cents per head, and during this time buyers were unwilling to give any more than that for some of the calves. I suspect that certain market operators subsidized the purchase of some baby calves during that time for public relation purposes. Farmers quickly conclude that marketing charges are too high when they exceed the market value of the product they offer for sale. Not all auctions based their charges on a "per head basis." In fact, the majority of Southern auctions base their charge on a "percentage basis" of the animal's market value. The percentage method has certain distinct disadvantages in that it does not take into account the actual cost of providing the services required to transfer ownership. Likewise, it may jeopardize normal profits for the operator when marketings or prices are low. And, when livestock prices are high, the charges may be unduly high. It seems to me that the amount of investment in facilities and time required to handle and sell a \$100 milk cow is often greater than that required to sell a \$200 steer. Auction operators should not overlook the fact that they are in competition with posted stockyards and larger terminal markets for the right to handle all livestock but particularly quality slaughter cattle. Auction charges must be kept in line or customers will be lost.

The method of making the charge, as well as the amount of charge, has important economic significance. But, we shall not discuss this further except to say that a reasonable percentage charge, together with a minimum and maximum fee, probably will be more acceptable to both operators and producers over the long pull.

#### Auction Market Association Helpful

Many of the problems such as starting time, method of making charges and the amount of charges, other selling practices, and problems associated with buyers could be solved more quickly and effectively through efforts of a progressive association of market operators. Such an association would provide a framework for industry-wide cooperation, and participation with professional agricultural workers. However, an association to be effective must keep the best interests of the entire livestock industry in mind and not become merely a monopolistic tool.

Our main interest in operational efficiency is to lower the cost of marketing livestock. But in pursuing this objective, we, as well as the producers, must realize that our interests will be best served when the profits in operating an auction are sufficient to attract competent forward-looking operators who have an honest interest in the present and future of the whole livestock industry.

#### Need For Improved Facilities

Many of our present auctions need considerable sums spent for capital improvement. Certain improvements would reduce operating costs to such a point that a reduction in charges would be possible. Other improvements would in turn provide better conditions for producers, workers at the market, and buyers, which in turn might contribute to higher prices.

"Father Time" has a way of playing havoc with some of man's best laid plans. Many of our auctions were constructed by modifying existing structures built for other purposes. As the business grew, pens and shelters were added--mostly in a haphazard manner. Certain auctions find themselves today in a poor location because of developments around them. In the next few years, we can contribute to better auction facilities which in turn should increase their operational efficiency if we get our "facts" ready and let the trade know we can and are willing to help.

We need to know more about the relative effectiveness of certain selling practices as well. For example, I don't believe I have ever visited an auction for any length of time that I did not overhear a producer ask some one connected with the market, "Do you think this animal would sell better by the head or by the pound?" Don't kid yourselves into believing that you know the answer to this and many other "everyday questions" faced by both the operator and the producer. Personally, I am not sure that generalized answers to such questions are possible; but I can say we are beginning to study them in an attempt to find reasonable and workable answers, as well as the conditions required for them to be true. The point is that we have plenty of work left in marketing for marketing men to work with. They need not embrace the whole field of production for the lack of worthwhile work.



### Pen Lots Sales Possible

In Virginia, we do a considerable amount of pen-lot selling of certain classes of livestock. Most other states have exhibited an interest in such practices with a view toward adapting them to their states. Let me warn you not to overlook the fact that such a method of selling has many serious problems peculiar to the operation. Some people overlook the fact that the simplest method of marketing is to sell a single animal by the head. Such a method of sale, however, is generally not the most efficient. Many inequities can and do occur when animals are sold in pen-lots with mixed ownership. It is absolutely essential that strict, objective standards be set up which are understood and acceptable to both buyers and sellers and are strictly adhered to and enforced by the auction operator if the inequities are minimized. This requires that the person sorting or grading the animals be honest and competent.

If pen-lot selling is adopted, how many animals should be sold as a lot? Should all animals of one weight range and one grade or classification be sold as a single unit? If not, should all producers consigning animals to such lots receive the average price for all lots (assuming that all similar lots did not sell for the same price); or exactly what the pen brought in which their animals were consigned? Again, I doubt that we know the real answers, but I challenge you to seek out the necessary facts.

The age-old problem of "starting time" for auction markets is intricately tied up with operating methods, adequacy of facilities, and quality of labor as well as buyer and producer attitudes. It also follows that the length of the sale is closely allied to the same conditions. An important step forward in labor efficiency in auction markets will be made when we begin to use regularly employed, well-trained labor. And, if we can improve working conditions in the markets particularly by eliminating extremely long hours and hazards to injury from livestock, we will tend to attract better labor. Moreover, even competent men are likely to make costly mistakes--not only in terms of their monetary costs but also in terms of public relations or good will--after working long arduous hours, as many do week end and week out at many of our Southern auctions.

### Suggested Improvements

Briefly, operational efficiency may be improved. Many capital improvements ranging from simple remodeling of existing facilities to new construction of entire auction facilities are now needed. Auction operators need advice in making these changes and would welcome your help. But, unless we rely solely on "intelligent guesses"--which may not turn out to be so intelligent--we must study auctions more closely. Their entire operations must be studied carefully, for answers relating to "parts" may not add to a successful "whole." Moreover, we must remember that facilities and operational practices are highly correlated. Again, the major emphasis should be placed, I believe, on the determination of practices that will contribute most to improvement of pricing efficiency, and then design the necessary facilities to operate within that framework. We have here, then a big job that is waiting to be done.

### Pricing Efficiency Affects the Level and Quality of Livestock Production

The prices consumers pay for meat and other livestock by-products, minus marketing costs and margins, provide the incentive for farmers to produce livestock. But in the main, it is the relative price of livestock as well as the

actual level of prices received for livestock compared to other products that the farmer may produce--together with relative cost considerations--which determine whether he will produce livestock. For example, cattle farmers endeavor to increase the number and weight of cattle sold when prices are high and reduce them when prices are low. But individual farmers find it extremely difficult to make the necessary adjustments required to maximize profits, especially over short periods of time, mainly because:

1. The production cycle for beef cattle is relatively long. It requires from two to five years to substantially increase the supply of slaughter animals (except in periods of liquidation).
2. Weather conditions beyond the control of farmers can alter the number, weight and condition of beef cattle sold. This phenomenon is readily observable during drouths which force cattle to market before they are ready or would normally be sold.
3. The lack of an accurate method of estimating beef prices several years in the future creates considerable uncertainty in beef production. This makes correct adjustment of supply to demand exceedingly difficult.

Livestock marketing men can assist cattle producers with such problems by providing farmers with the latest and most accurate outlook information. But perhaps your greatest contribution towards the maintenance of a stable and profitable economy lies in the assistance you can provide in selecting the most opportune time and place to sell. Unfortunately, our knowledge in this field is also scanty and meager. Nevertheless, we can provide some assistance in many cases by applying what we do know, no matter if it is meager.

#### Auctions Tend to Set Level of Prices

Livestock auctions are the only type of organized market available to many Southern producers. And, because of their relative importance both as an outlet and source of purchase for livestock, they are important from the pricing efficiency standpoint. All of us are aware that "the prices paid on last auction day" tend to be the "standard price" for trades during the balance of the week. Because of this, it is important that prices of livestock sold at auctions would be near their true value. Not only should the level of prices commensurate with the average quality of livestock, but also the price-grade differences, be representative of the true expression of the consumer demand as reflected at the retail meat counter. Unless premiums are paid for quality, we can never hope to improve materially the quality of product produced. For generally it costs more to produce quality.

Pricing efficiency may be measured in terms of deviations in prices received at a local market from those at an "ideal" market. Prices in an "ideal" market accurately reflect the relationships that exist between demand and supply for a commodity after time, form and place are taken into consideration. Differences in time affect prices to the extent of the cost of storage and some risk; differences in form alter price by amount of the processing costs and margins; and differences in location modify price in the amount required to move the commodity from place to place.

#### Auction Marketing Truly Competitive

An "ideal" market is one in which (1) many buyers and many sellers are



trading in a (2) well-defined area that provides (3) transportation, communication and other marketing facilities, and (4) accurate and reliable sources of market data for all traders. Admitting that the truly "ideal" market is an "ivory tower" creation, we must nevertheless concede that many of the requisites of an ideal market exist in the United States for most of our livestock products. The livestock industry is large and is marked by a high level of specialization. This brings many buyers and sellers into a market that maintains an extensive transportation and communication system. The system's main drawback lies in the inequity in skills and source of data available to different buyers and sellers.

#### Auction Operators Can Help With Marketing Education

Livestock marketing personnel can provide much useful information to producers regarding normal seasonal patterns of supplies and prices together with reasons why exceptions to normal patterns may be anticipated in a given period. Information relative to the effect of certain holidays--including Jewish holidays--on the demand for livestock should prove helpful to most livestock producers. We should, I believe, advocate a better livestock market news service, teach farmers where they can obtain what data are available, and instruct them in methods of interpreting such data.

#### Education and Research

Some demonstrational grading is being conducted in all Southern states, so I am told. I have always felt that such a program to be really effective should be broadened to include "real live" demonstrations at auction markets on sales dates. If auctions had sales rings that were reasonable sound proofed wherein meetings could be held, it seems to me that auctions would provide an excellent locale for conducting livestock production and marketing meetings. Besides, such meetings should tend to relieve farmers of the tedious monotony of waiting for the sale to begin. If price reports are available, some intra-market comparisons are possible if something is known concerning the market's operation and its method of reporting together with the quality of the various classes of livestock normally sold at each market.

#### Study of Auctions Now Underway

Currently, livestock marketing research people in the South are engaged in a project designed to study the relative level of pricing efficiency at selected auctions throughout the Region. We are getting information on the breed-type, market class, grade and yield of cattle sold at our Southern auctions. This is the first time to my knowledge that such information has ever been collected on such a broad scale. In looking over some of the information collected last Fall, I was amazed to find that on certain items of animal information for which similar data were collected on a previous project and reported in our Southern Livestock Marketing Bulletin (No.26.) there was an amazing degree of similarity. For example, in both surveys, we found that 80% of the cattle, irrespective of market classification, were considered either beef type or mixed blood. Tables 1, 2, and 3 give a good description of the kind and quality of cattle that were sold at Southern Auctions last September.

Unfortunately, the analysis has not progressed to a point where much can be said about prices, competitive conditions, etc. But, if the auction management does in fact buy animals primarily to help support or put a floor under

prices (as they claimed), it appears that pricing efficiency is less effective for veal calves and cows than for other classes of cattle. On the other hand, if "speculators" trade in those classes in which the chances are greatest for successful arbitrage operations, then slaughter steers and heifers suffer relative to other classes (Table 1). Moreover, packer buyers bought smaller proportions of these classes than they did of other classes of cattle.

Are Producers of Top Quality Animals Amply Rewarded?

Dr. W. K. McPherson of Florida has recently completed a study, "The Pricing of Beef Cattle and Calves in Florida," which is one of the best applied studies of pricing efficiency I have seen. One of his most striking conclusions is that Florida cattlemen who produce high quality steers and heifers are not receiving prices for them comparable to prices for lower grade animals. He feels that because of this face quality improvement in Florida's cattle is being hindered. I have tentatively reached a similar conclusion regarding Virginia conditions. We saw commercial grade steers sell this Spring at one of our better auctions for as much as, if not more than, good and choice grade steers. These commercial grade steers sold at relatively good prices, but the same was not true for the choice grade steers.

Selected data on prices received for veal calves at two Virginia auctions last Fall are shown in Table 1. An inspection of these data will lend credence to the conclusions that (1) variations in prices within grades are unduly large and (2) the grade-price differences are not nearly as wide as those reported at our larger terminal markets throughout the nation.





Table 1. Characteristics of Cattle Purchased by Type of Buyer Southern Region During 2-Week Observation Period, September 1953.

Percent Purchased By:										Cattle in	
Class of										Respective Classes	
Cattle Sold:Buyer										No. of	
:Packer: Local :Order: :Other: :No. of										Head	
:Slaughterer:Buyer:Speculators:Buyers:Management:										Percent	
Veal	:	:	:	:	:	:	:	:	:	:	:
Calves	:	46	:	3	:	16	:	17	:	4	:
	:		:		:		:		:	14	:
	:		:		:		:		:		:
Slaughter	:	:	:	:	:	:	:	:	:	:	:
Calves	:	46	:	8	:	11	:	16	:	8	:
	:		:		:		:		:		:
	:		:		:		:		:		:
Slaughter	:	:	:	:	:	:	:	:	:	:	:
Steers	:	35	:	10	:	16	:	21	:	15	:
	:		:		:		:		:	3	:
	:		:		:		:		:		:
Slaughter	:	:	:	:	:	:	:	:	:	:	:
Heifers	:	34	:	10	:	15	:	19	:	15	:
	:		:		:		:		:	7	:
	:		:		:		:		:		:
Slaughter	:	:	:	:	:	:	:	:	:	:	:
Cows	:	52	:	7	:	9	:	16	:	10	:
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Table 2. Proportion of Cattle Marketed at Southern Auctions by Breed Classification, September 1953

	Proportion of Slaughter Cattle That Were:					
Market Classification	Beef	Mixed	Dairy	Brahma	Total	
	Percent	Percent	Percent	Percent	Percent	
Veal Calves	24	57	18	1	100	
Slaughter Calves	58	27	7	8	100	
Slaughter Steers	59	28	10	3	100	
Slaughter Heifers	49	32	14	5	100	
Slaughter Cows	29	28	42	1	100	
All Animals	46	34	16	4	100	

Table 3. Proportion of Slaughter Cattle of Specified Breed Classification Bought by Type of Buyer, Southern Region, September 1953

	Percent of Breed Class Purchased by:							
Breed	Local					Manage-		
Classification:	Packer:	Slaughter:	Order:	Speculator:	Other:	ment	Total	
	Percent:	Percent:	Percent:	Percent	Percent:	Percent:	Percent	
Beef	41	8	15	19	12	5	100	
Mixed	40	6	13	19	11	11	100	
Brahma	56	23	7	8	2	4	100	
Dairy	53	6	11	15	9	6	100	
Total	43	7	13	18	11	8	100	





Table 4. Price-Grade and Yield Relationship for Veal Calves at Two Virginia Auctions, September, 1953

Grade of Veal Calves	LARGE MARKET				SMALL MARKET			
	Range in:		Average		Range in:		Average	
	Price	Dressing : Percentage:	Price	Dressing : Percentage:	Price	Dressing : Percentage:	Price	Dressing : Percentage:
	Dollars Per Cwt	Percent	Dollars Per Cwt	Percent	Dollars Per Cwt	Percent	Dollars Per Cwt	Percent
Prime 1/	---	---	None 2/	--	23.00	60	23.00	60
Choice	\$26.00 - 27.90	57 - 59	\$19.00 - 24.00	59	23.10	58 - 60	23.10	59
Good	\$16.50 - 26.30	54 - 57	\$19.00 - 24.00	56	22.15	54 - 58	22.15	57
Commercial:	\$13.25 - 25.70	49 - 55	\$14.50 - 24.00	53	19.70	51 - 56	19.70	54
Utility	\$12.00 - 20.80	48 - 53	\$14.00 - 24.00	52	17.00	50 - 54	17.00	52

1/ Prime and choice sold together in pen-lots at large market.

2/ All calves sold separately at small market; only one prime calf consigned.





Dollars Per Cwt.

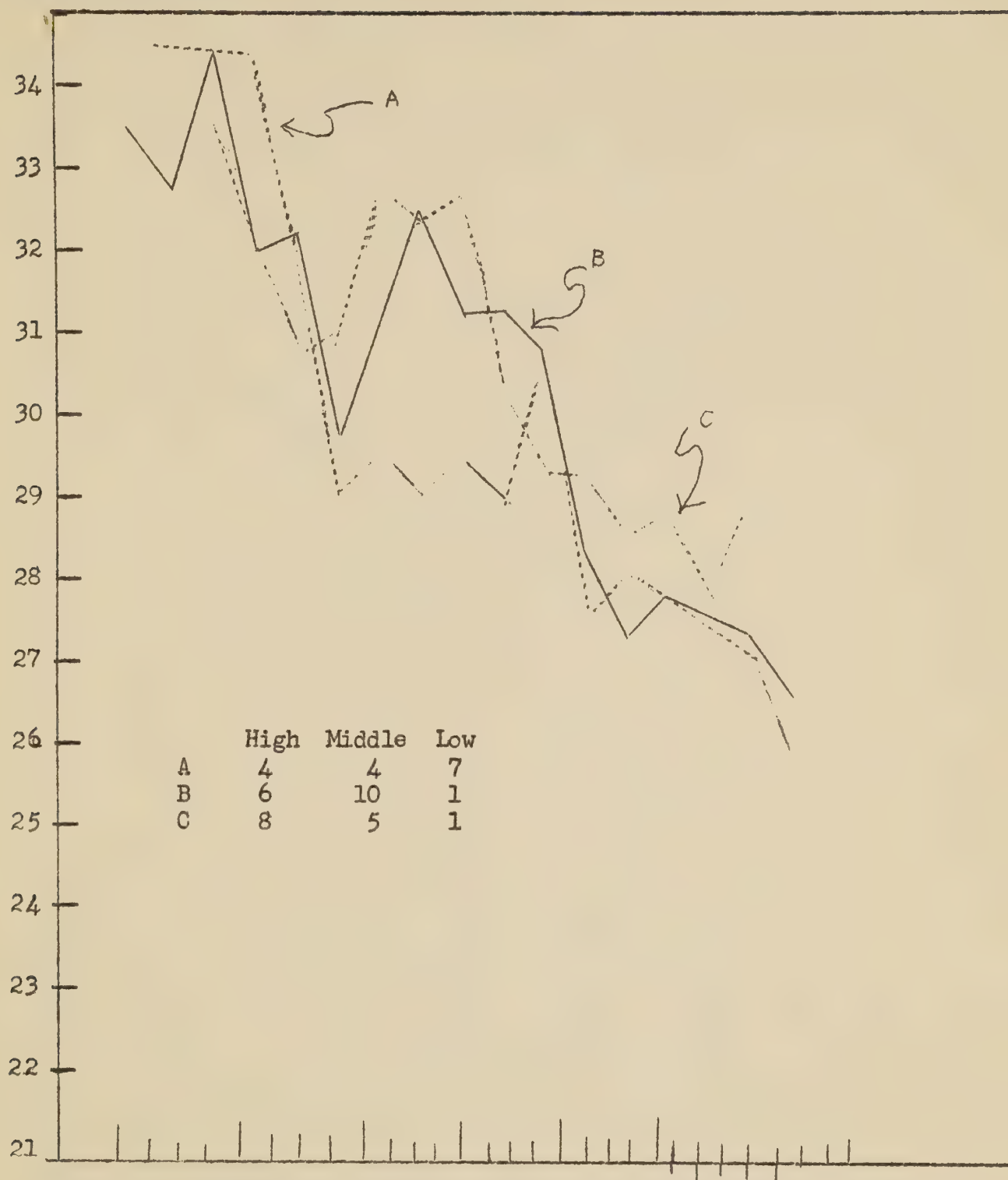


Figure 1. Prices Received for Choice-Prime Veal Calves, 3 Virginia Auctions, 1954





Dollars Per Cwt.

14 —

13 —

12 —

11 —

10 —

9 —

8 —

7 —

Market	High	Medium	Low
A	2	10	3
B	16	1	-
C	-	4	10

J 2 3 4 F 2 3 4 M 2 3 4 5 A 2 3 4

Figure 3. PRICES OF UTILITY COWS AT 3 VIRGINIA AUCTIONS, 1954.





## LIVESTOCK AUCTIONS: HOW THEY CAN BE IMPROVED 1/

Auctions started about 146 B.C. They have been in effect a long time. As you know the first 100 years are supposed to be the hardest, but if it was much worse than now, at the present time, I sure do pity them.

The first thing I would like to say in regards to auctions is: Auctions need the farmers or persons who sell, the buyers, and the meat packing companies. We need auctions, because you could not travel around the country and buy livestock, as we had to do when I began buying cattle in the early 1920's.

I have six thoughts concerning the auctions: time, sanitation, weight, pen hooking, taxes, and too many stockyards.

Time: The three times, as you know, are the past, present, and future. I want to talk for just a few minutes about time. At present, I know of auction markets who advertise that the sale starts at one o'clock. You make it a point to arrive at the sale by that time, only to find they don't start selling livestock until 2 or 4 o'clock. I would say there are about six auctions out of the 56 stockyards in North Carolina who start their livestock sales at one o'clock. What are auctions for? Here are some of the things they are selling for several hours at most of the stockyards in North Carolina: Hardware, flashlight batteries, bedspreads, medicine, cars, wagons, clothing, utensils, and many other items--just putting on a regular circus. The meat packing companies send their buyers to auctions, when the auction starts, to buy livestock. Stockyards are for the purpose of selling and buying livestock and not trivial articles. Auctions start anywhere from 3 to 6 o'clock in Virginia stockyards. I would like to take my hat off to our neighboring State, South Carolina, and Mr. A. L. DuRant, Extension Livestock Specialist of that State. When they advertise a sale at one o'clock, everyone is ready at the ring for business at that time. We have a law in North Carolina to start auctions at one o'clock, but is this law enforced? In my opinion, an auction market should start at 10:30 in the morning. If this time could be used, a man could finish his business before night.

Sanitation: There has been a great improvement in sanitation in the past 15 years. The hog pens are supposed to be cemented, which is one of the best laws I know of. The only objection to this law is that it is not enforced. Not half of the yards in this State are completely cemented floors. However, some of our yards have cement pens for pigs and top hogs. Then, some of the stockyards have so much dirt and mud that you cannot tell a white hog from a red hog. Here is where we need more sanitation. Cattle pens should be cleaned every week. I have seen cattle pens half knee deep with compose and have seen cattle down and could not get up without help. Another thing is the over crowding of cattle in the pens. At the plant where I am employed, we have cement pens. We clean the hog pens every day, and we clean the cow pens as it is needed. We have laws for this phase of sanitation but the laws are no stronger than their enforcement.

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1/ Pres nted by W. R. Boger, Livestock Buyer, White Packing Company, Salisbury, N.C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



Weight: I think that the cattle should be weighed at the time of sale. A buyer buys on yield and percentage. If cattle are weighed at 10:00 o'clock in the morning and sold at 10:00 o'clock that night, you cannot get within two percent of what this animal will yield. If cattle are weighed at the time of sale, you can get about seventy-five percent correct. This would make you a better buyer and nine times out of ten, get the farmer more for his cattle. Hogs should be weighed before and after being sold. In the transportation from the stockyards, the shrinkage of hogs should not exceed four percent driftage. I know one auction market that has this method of weighing, and it works very well. We have weight and measure laws in every State, but a law is no stronger than its enforcement. If a person sold a pound of bacon which had only 14 ounces in the package, you would certainly hear about it from the buyer.

Pen Hooking: I know men that do not work, just go from one yard to another, five days a week, and pen hook cattle and hogs. They don't pay taxes. No one knows how much money is made. They always do business on the other man's property. Pen hookers do not buy a license to operate. One stockyard operator told me that he would like to see a \$1000 fine on every pen hooker that was pen hooking on his property or any other stockyard. In many cases, a pen hooker is the type of man that will do any kind of business and sell anything to make a dollar. However, we do not have a law regarding pen hooking.

Taxes: I am not going to say much about taxes. There is a tax on almost everything. I do think taxes of stockyards should be increased high enough that a stockyard cannot be open in every crossroad.

Too Many Stockyards: We have 56 stockyards in North Carolina. In my opinion, we need only 10 stockyards. I find if we have less yards, we would have more cattle and more buyers at a sale. The farmers would get more for their hogs and cattle by having more buyers to bid on their stock. It is hard to go to a little stockyard and buy a full load of cattle. The North Carolina State Marketing Division puts on 12 feeder calf sales in the fall over the State. It has proved very successful in obtaining out-of-state buyers to purchase some of these calves. I refer again that 10 yards in North Carolina are sufficient to handle the livestock. In my opinion, there is not a stockyard in North Carolina which operates under the national Packers and Stockyard Act.

In regards to 4-H Club sales, there were so many Club sales in 1954, that you could not buy a load of steers at one sale. If we take twenty counties and have one sale in the twenty, we would be better off and get more money for the boy's and girl's cattle. This method would also bring in more out-of-state buyers.

It has been a privilege and honor to speak with you on how our auctions can be improved. Let us all hope and help to have improvements in our North Carolina stockyards in the future.

ESTABLISHING GUIDELINES FOR EXTENSION'S  
LIVESTOCK AND MEAT MARKETING PROGRAM 1/

The major overriding philosophy or underlying principle in Extension marketing work might well be summed up in one overall objective:

A marketing system that more accurately and promptly reflects consumer preferences back through marketing channels to the breeders and feeders of livestock.

A retailing operation or system that takes full advantage pricewise of existing or potential consumer preferences and ability to pay for differences in meat values, includes such differences:

FINISH - CONFORMATION - TENDERNESS - FLAVOR - JUICINESS

These factors controlling consumer acceptance could well apply to all of the various cuts. To make consumer acceptance in the retail counter effective in terms of dollars and cents, will call for a better classification and identification of cuts than we have had in the past. Further economic research will be needed to provide Extension with an interpretation of these consumer preferences in terms of dollars and cents. We in the Extension livestock and meats field are badly in need of some facts rather than opinions on how much more the housewife will pay for pork chops from the No. 1 hog than she will from the No. 3.

The Extension Service has a very real responsibility for the creation of this improved consumer understanding. They must be held responsible for creating a more intelligent group of meat shoppers. Miss Ueland will discuss this problem in the presentation which follows. She will tell you something of the lack of information that was revealed among the Oregon housewives.

Frankly, I am not at all astonished to find this lack of understanding. The retail meat man of yesterday, gave housewives no time to learn.

Today, we are making progress. The prepackaging and selfservice counter has done much to improve the housewife's understanding. It has provided the atmosphere in which she can and in a sense must, exercise more meat buymanship. Selfservice has eliminated the hurried decision regarding weight and price. She is now giving more attention to the device of cuts and grade. The housewife is not letting her pride and the meat cutters showmanship influence her decision to buy an expensive 4 pound sirloin steak, when her pocketbook and family desires and needs, call for a 6 pound pot roast. She is spending more time evaluating these cuts in terms of her real demands. She is learning to know by observation and comparison, the difference between a club and T-bone steak. Research at Michigan State College indicates a shift to prepackaging and selfservice. In a particular store, this resulted in a

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1/ Presented by S. T. Warrington, Chief, Livestock, Dairy, and Poultry Marketing Branch, Division of Agricultural Economics Programs, Federal Extension Service, U.S. Department of Agriculture, Washington 25, D.C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N.C.



40 percent increase in the sale of beef. They concluded that much of this increase resulted from the fact that the housewife was able to exercise more freedom in her choice of beef cuts.

Selfservice with its free selection is teaching the meat man to do a more intelligent job of pricing the various cuts from the beef carcass. The alert retailer, that is operating a selfservice counter, is finding out that some things with respect to the relative demands of the customers in his community. This then represents a major step forward in developing a system of marketing which more accurately and promptly reflects consumer preferences back through retailers toward the feeders and breeders of livestock.

Retailers are going to play an increasingly important role in any modification of our marketing structure for meats. The retailers are going to provide the Extension workers in the livestock field with information and ideas that may be all important in planning the changes in the farmers livestock production and marketing program. We can utilize the retailer's intimate knowledge of the housewife's likes and dislikes that will eventually be interpreted into dollars and cents differentials as between species and grades of livestock.

If we are going to fulfill our responsibility as educators in the livestock and meats field, we must know the retailers problems and let them know the livestockman's problem. We must make provision for a two-way communication system, that the market might reflect consumers' preference back to producers in a clearer and more concise manner than has been the case in the past.

To packers. The objective of a marketing system that more accurately and promptly reflects consumer preferences back to breeders and feeders of livestock may mean a refinement of the selling techniques for both the fresh and the cured product.

Today, the packer is doing a much better job of sorting and identifying beef carcasses than he was 20 years ago. He is evaluating each retailer's needs and demands more accurately. He is sorting his beef carcasses to fit the pocket books of each retailer's consumer group. His problem is one of providing each retailer with a consistent supply of the weight and grade of meat which fits the retailer's customers.

On the live cattle buying side, packers, for years, have been buying beef on a graded basis which reflects its value in the wholesale market. In some cases the packer-buyer has done this sorting in his own mind and then thrown the figures together for an average price. This does not provide livestock producers with the incentives for improving production. Though it is asking considerable of the packer-buyer, it would be helpful if they would cooperate in providing more of these lessons in grades and their relative values.

In the pork field, it would seem as though many hog slaughterers have not taken full advantage of the opportunity or possibilities of differentiating between the pork cuts from meaty versus the fat-type hogs. They contend,

and they have a point for the educational man to remember, that the percent of meaty-type carcasses or cuts in the market is too inconsistent and small to justify segregating it to sell at a premium. We wonder what percent that must be? We are looking forward to the day when differentiation in the wholesale and retail trade can become a factor in pricing live hogs in the market place.

In buying hogs, packers on the terminal market, say that they will buy hogs in any way they are offered, and that they have a problem in finding sorted hogs in many terminal markets. Some are doing it, though live grading has some weaknesses and difficulties, it would be one way to set the stage for a very beneficial shift from the fat or chuffy hog to the meatier type.

Market agencies. To the market man, whether he be the owner of the local or terminal yards or an agency selling hogs for the farmer, he will find reflecting consumer preferences a very difficult problem. Here we have the point of contact with producers. Here is the focal point for all of the complicated price making mechanisms. Here is the point where we put the spotlight on consumer preference for the benefit of our livestock breeders and feeders. Here we help him to decide on future changes in his livestock production and management program. This is the point where we hope to make the dollar talk in its own very special language. This is where the consumer's changing demands for pork should tell the producer that they don't like a pork chop excessively loaded with intra-muscular fat, This is the point where we would hope to find her demands for leaner bacon interpreted clearly and concisely with that very effective teaching tool, the dollar.

I think we must admit, that if the buyer insists on making his sorting and evaluation only as a means of arriving at an average price for the whole load of either hogs or cattle, that we are nullifying much of Extension's educational effort to improve quality. He can help us immeasurably if he will emphasize the points by sorting and paying for the livestock on a sorted basis.

It should be pointed out that many producers will object. They will accept so called premiums, but not discounts. The Extension man can help the market man by teaching the why's and wherefore's of both. Let's set the stage for differentiating both ways - not just premiums.

It should also be pointed out that many facilities make sorting a laborious and hence, expensive process. There would seem to be some need here for facilities research designed to develop means for sorting livestock faster and more efficiently. We have seen little progress in the penning, sorting, and scaling of livestock in the past 50 years.

It is obvious in the above analysis that there is an acute need for a coordinated attack on the problems in livestock and meat marketing. Consumers, retailers, packers, market agencies, and producers all have a stake in improvement. How do we get coordination? How do we get an agreement as to the areas which need attention?

These relationships with consumers, retailers, meat packers, and livestock market agencies are not always easily developed. It is essential



that contacts with groups be developed on a broad base. This broad base should help to avoid the pitfalls and possible criticisms which often result from not working or having offered to work with all segments of the market industry, packing house trade or retail groups. Oregon has utilized a plan which has given excellent results. This plan for getting the livestock and meat industries program in marketing out on the table involves a good deal of work, coordination, and planning.

During mid-1953, the Oregon State Extension staff sat down together and planned a wholesale or broadside approach to the livestock and meat marketing problem:

To develop a basis for a better understanding of the problems and functions of all groups--consumers, auction and terminal market agencies, packers and wholesalers, retailers and labor--by individuals within groups and between groups.

To evaluate problems and to recommend courses of action which would be to the mutual advantage of all groups toward improving the marketing of livestock and meats.

To ascertain changes that are taking place in the marketing of livestock as well as the merchandising of meats, and to evaluate these changes as they affect individuals, groups, and the general economy of Oregon.

To determine the kind, amount, and scope of research, education, and other services the livestock and meat industry at all levels may need.

One or two State staff members were assigned the responsibility of contacting and working with key individuals in each segment of the industry including: consumers, retailers, meat cutters' union, packers, terminal and auction market interests, as well as producers. A series of three or more meetings were then held with each group during which meetings they outlined problems confronting them and made recommendations for changes or work. The consumer groups were organized in a special manner. Miss Gale Ueland will discuss the technique or procedure which was used in developing that phase of the program. The two livestock specialists held meetings with producers in each county where livestock production was one of the major enterprises. After this series of meetings the groups in the counties elected a chairman to represent them in a statewide meeting. A similar type of organization or representation was brought together from each of the major segments of the industry. After this ground work was laid they held a 2-day conference on the campus at Oregon State College where each segment or group had an opportunity to air or present their views with respect to suggested improvements in the marketing of livestock and merchandising of meat.

This conference was an initial step in establishing an integrated approach to more efficient livestock and meat marketing by all segments of the industry.

The value of understanding the role each phase of the industry plays, what problems other groups face, and the importance of working together for a common goal were clearly demonstrated. This approach to the development of an extension program has real merit in obtaining industry-wide interest, guidance, and support.

The conference did much to acquaint many people, not before familiar with the Extension Service. This was particularly true of the urban consumer and labor groups.

The fact that the State marketing committee was asked to continue to function provides the necessary machinery to effect many of the recommendations.

This is a program which many of you might well adapt to your respective States.



## HOW CONSUMER INFORMATION FITS INTO LIVESTOCK AND MEAT MARKETING PROGRAMS 1/

I'm sure that it is not a false assumption on my part that none of you here today question the fact that well-informed consumers are essential to the livestock and meat industry. You may vary in your opinion as to what information is important, by what method that information can best be provided, or who should do it, but the fact remains the consumers are the market, and unless you have enough consumers buying meat at a profitable price to producers and handlers all of your efforts, whether in the production or marketing field, will be futile.

I would like to accomplish two things this morning.

1. Acquaint you with the work the Extension Service is doing in the field of consumer information.
2. Illustrate some of the methods being used and the kinds of information consumers want.

### Extension Consumer Information Program

At the present time there are extension consumer food marketing specialists serving 25 States and Puerto Rico. Their activities are confined largely to urban areas and the mass media approach is used primarily -- radio, press, and television. There are 13 States carrying on work in this field in the area involved with your conference here.

The objectives of this program are:

1. To help food shoppers get more food value and dollar value for their food dollars.
2. To encourage food shoppers to adopt shopping practices which make for more efficient marketing.
3. To help food shoppers have a better understanding of marketing.

These are not promotion programs, the information is prepared from the point of view of the consumers. At the same time all segments--producers, and handlers benefit.

It has been more satisfactory, in most cases, to locate the consumer information specialists in a highly populated area, with a terminal market. Much of the information they need must be gotten from contacts with wholesalers and retailers. The information must be current, pertinent, localized,

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1/ Presented by Gale Ueland, Extension Economist, Consumer Education and Marketing Information Branch, Division of Agricultural Economics Programs, Federal Extension Service, U. S. Department of Agriculture, Washington 25, D. C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

and accurate. This information is generally channeled through other professional workers such as radio and television people, editors, extension agents, health and welfare workers, and the like. This is done, for the most part, through a weekly bulletin, newspaper articles, and radio scripts, as well as programs of their own. In addition most of the specialists that have access to television do a regular program.

The highlights of successful consumer information programs:

1. Cooperation of many--producers, consumers, trade, extension staff, resident staff, research, communication people, other Federal agencies.
2. Competent personnel--home economist, and agricultural economist.
3. Concentration of effort--urban area, terminal market, and mass media approach.

We have just recently completed the field work on an evaluation study of the consumer information project in Louisville--at the present time the findings are being analyzed and tabulated. The report should be available sometime this fall. Preliminary figures give us much basis for the belief that the mass media approach can be very effectively used on programs such as these.

#### Livestock and Meat Marketing Information

Now for the specifics on kinds of information regarding livestock and meat that is being furnished to food shoppers.

1. The supply of different kinds of meat and its effect on price.

Livestock specialists have been very helpful in furnishing information and alerting consumer specialists to seasonal variations in supply both as to kinds and grades of meat available. These consumer programs can be very helpful to your programs if you cooperate. The consumer specialists are concerned with all food products and therefore are not in a position to be as well informed on the situation facing any one commodity as you who are specializing in a commodity area. Advance information is important.

Mr. Warrington has talked to you about the Oregon Livestock and Meat Marketing Conference. As a part of preparing the consumers report a survey was taken of 1200 urban homemakers in 7 major cities. The purpose was to stimulate interest in the livestock and meat industry; spark plug thinking in terms of meat marketing problems; and determine consumer problems in meat buying, marketing practices, selection, use, nutritive value, and cookery of meat. From this survey it was found that less than one-third knew anything about the seasonal supply variations. They expressed a desire for this kind of information. The increased use of frozen locker facilities and home freezers has amplified the desire to know when an opportune time is for buying for storage. This is helpful to producers, and handlers too, in order that an orderly market is available when commodities come on the market.



Another example of giving seasonal supply information to consumers is the bulletin prepared by the New York Extension food marketing staff showing retail food prices--seasonal variation and cost per serving of individual foods--it is not possible for all areas to compile such data due to the lack of the retail price reporting service. This bulletin was designed primarily for professional workers. It helps them time their releases. It has also been very useful to food buyers for institutions.

## 2. Information on price variations between different cuts.

I'm sure that you have heard people say, just as I have, that steaks cost too much. It is important that consumers understand that only one-third of the animal is made up of the better known and more demanded cuts--by becoming familiar with all cuts, and uses, it is possible to effect savings. Retail store people are very anxious that consumers be better informed on all cuts. In the retail store report in Oregon they stated "there is reluctance on the part of consumers to purchase the lower-priced cuts of meat, and a lack of knowledge pertaining to the marketing of meat. Many consumers lack information on current changes in meat values and general knowledge of meat marketing functions regarding the many services purchased with the meat dollar."

## 3. Information on the production and marketing of meat.

Consumers need to have a better understanding of what is involved--costs, services, number of people, and other things. There is a need for better communications among producers, handlers and consumers, and between the various groups.

The Oregon study showed a large percentage of the women believed there were government price supports on meat now.

Short movies showing the marketing of food from the farm to the consumer have been an effective way to increase consumers knowledge of the problems, investment, and the like that others are faced with in providing meat. These have been used on television. Right now we are developing a short film on meat and livestock marketing in cooperation with the Office of Information in the Department of Agriculture. The American Meat Institute has permitted us to use their film, "This is Life," and from it we will clip enough footage for a 5 to 6 minute film clip to be used on television. These will be available on loan from the Department. Telecasters can fit these in to their regular program.

## 4. Information on selection, care, and use of meat.

I'll not attempt to go into all of the kinds of information that is needed in selecting, using, and caring for meat. I'll highlight a few things. Much of the information on selection is on the basis of use to be made of the cut--for example most shoppers look for something to roast, pot roast, fry, or broil, and the information they want is what cuts are suitable for what purposes. They can then better judge the comparative values.

Only half of the Oregon women in the survey could identify meat cuts--less than half felt capable of judging quality. This is an important area to help consumers.

Much emphasis has been given to helping consumers make comparisons on cost per serving. Cost comparisons have been particularly helpful to camps, institutions, welfare organizations, and other professional workers.

We feel that this program can do much to improve consumer understanding, increase satisfaction they get from meat and help toward increasing consumer demand for meat. Food marketing information for consumers is a relatively new program for Extension and one in which we do not have all the answers--there is no one right way to execute the program. We do feel however, that experience to date has given us some evidence of success factors. We welcome all your suggestions, criticisms, and support.



## LIVE GRADING AT GEORGIA AUCTIONS 1/

The grading and marketing of hogs is a matter of major concern to Georgia farmers. I shall discuss this subject from the angle of existing problems and plans of action aimed at their solution, rather than on any unusual setup which could be termed as peculiar to the State. I believe that many of our problems are typical of the situation found in the other Southern States. The main difference would be that Georgia produces more hogs than any other Southern State, and therefore, the problems might be magnified in proportion.

Georgia ranked 9th among the States in hogs produced during 1953. The cash income from sale of hogs amounted to \$59,311,000. Add \$23,072,000 which was the estimated value of hogs slaughtered by farmers for home consumption, and we have a gross income of \$82,383,000. The importance of this industry is further emphasized when we realize that 23 percent of all cash income from sale of livestock and livestock products (including poultry and eggs) came from hogs.

The concentration of hog numbers follows closely the "Peanut Belt" of South Georgia. This area is in the upper and middle Coastal Plain and is noted for its widely diversified farming system. The hog industry developed years ago when peanuts were introduced into the area. In those days the bulk of the peanut crop was marketed through hogs, but in recent years the shelling and crushing trade has taken an ever increasing portion of the crop. Recent development of adapted strains of hybrid corn has brought about a swing from peanuts to corn as the important fattening crop. I use the word "crop" because Georgia hogs are customarily fattened by "hogging-off" crops in the fields.

The history of organized hog markets in Georgia goes back to the World War I years and the period immediately following. Prior to that time, most farmers were at the mercy of independent buyers and speculators, because of the absence of farm transportation, good roads and the long distance to packing plants. Farmers usually received prices far below the prevailing market quotations because they had no radio or other means to keep up with market fluctuations. County agricultural agents at that time began to organize cooperative hog sales. These sales were held at railroad sidings where stock cars were placed on designated sale days. A buyer representative from one of the packers would be present to purchase the hogs within the slaughter weights. One weakness of this program was that it did not provide opportunity for competition among buyers and it also did not provide an outlet for feeder pigs. As the cattle population increased, there arose a need for livestock sales which would also provide outlets for cattle. Auction markets began to spring up, usually individually owned and operated. A few cooperative markets were set up in the early days, but most of them finally were purchased by individual operators. The growth of these markets over a short time was phenomenal. Georgia now has 94 weekly livestock auction markets. Unfortunately, some towns have two and

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1/ Presented by Charles E. Bell, Jr., Livestock Specialist, Georgia Agricultural Extension Service, at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

even three markets. With the result, it is almost impossible for enough packer buyers to get to all of the markets in sufficient numbers to provide the needed competition. Georgia also has 378 slaughter plants varying from small sausage plants and abattoirs to large packing houses. Throughout the hog belt, hogs are normally sold in graded lots. These grades are weight grades as follows:

No. 1's	- 180-240
No. 2's	- 160-180
No. 3's	- 140-160
No. 4's	- 120-140
No. 5's	- 80-120

There is a great deal of variation in finish and type among hogs placed in each weight class as only the roughs, stags, piggy sows and underfinished hogs are thrown out of these weight groups. At sale time each weight group is sold in one lot. It is my opinion that the system of grading and selling will have to be changed before our farmers will be induced to produce a meat-type hog. Under the present system, the man with top quality hogs takes a loss when they are pooled with lower quality hogs with the same weight class. Also, the producer of overfat, chuffy hogs gets more than his hogs are worth. We are beginning to do something about correcting this situation in Georgia; however, it is just a beginning. I have talked to a number of market operators about the possibility of separating meat-type hogs. They claim that if they were to separate the hogs by quality grade, that their farmers would soon wise up and sell them only their top quality hogs. The rest of the hogs would go to some other market where they could ride in on the average quotation. We then approached the packers on this problem. I checked with leading packers from both South Georgia and North Georgia to find out what proportion of the choice hogs which they bought graded in each of the three choice grades. The report was as follows:

	Choice #1	Choice #2	Choice #3
South Georgia	15-20%	30-35%	45-55%
North Georgia	20-25%	15-20%	60-65%

Most of our packers are now very much interested in this matter and at least two plants are checking the dressing percentage and carcass measurements on every hog going through their plant. They are using three grades as follows: Meaty, Good and Overfat. The back fat and carcass length figures very closely with the USDA standards. They are also checking the yield margin, grade margin and quotation card margin on each hog. One packer manager who had moved in from the Midwest said that "he didn't know we had a problem of fat hogs in Georgia until these tests showed a large percent of the hogs are too short." Another packer expressed his belief that "under Georgia conditions, he believed that improved breeding would largely take care of the situation as our hogs are not marketed with the high degree of finish usually found in the Corn Belt."

We believe that the best approach to the production of meat-type hogs is through the packer and the producer. When this has been accomplished, I think we can induce the market operators to grade on the basis of quality. One of the best tools we have had to educate the farmers as well as impress the packer



has been our Annual State Barrow Show which has been held now for five consecutive years. This show includes entries from all parts of the State and each year we tighten up on the requirements for entry. This past show was limited to choice barrows only. These hogs were sold to four local packers and who gave us a report on the cut out figures. They reported no condemnations of livers and approximately 30 of the carcasses graded Choice #1, 46% as 2's, and 24% as #3's. Next year we plan to bar number 3's from entry in the show. We still need to work out a uniform system of computing cooler shrink between the various packers. Apparently they use slightly different methods for figuring this for there was considerable variation in the figures although the quality of the hogs received by the four packers was practically the same. Reports from the four packers were as follows:

	<u>Cooler shrink</u>	<u>Yield</u>
Packer A	2.0%	70.7%
Packer B	2.50%	71.0%
Packer C	3.25%	67.5%
Packer D	2.0%	69.2%

Another problem which has been of serious concern to Georgia hog producers is the differential between prices paid in Chicago and prices paid on Georgia markets. This differential figures from \$1.35 to \$5.00 per cwt. This differential is narrowest during the months of May and June and widest in September and October. Part of this is due to Georgia prices being established on a soft pork basis. Our farmers are rapidly switching to corn for finishing their hogs and most of them still have to sell on this soft pork quotation. Actually there is little justification for such a wide spread because there is about the same chill room shrink between soft and hard pork and very little difference in the dressing percent. Where allowance is made for corn fed hogs, the difference on that same market is usually only \$.50 to \$1.00 per cwt. Condemnations from internal parasites undoubtedly play a big part in this price differential. One major South Georgia packer reported that 89 percent of the livers and 66 percent of the kidneys were condemned. North Georgia packers report liver condemnations varying from 40 to 60 percent according to the time of year and the average loss in variety meats averaging 70 cents per hog. I believe that if we can establish the meat-type hog as the predominate type marketed in Georgia, we can narrow this price differential considerably. We have just passed through an unfavorable period to begin an educational campaign with the farmers due to the scarcity of hogs and high prices paid. The small sausage killers have run the price of overfat hogs up on a par with the meat-type. However, we are about to enter a period where such a campaign could be successfully carried out. In thinking of our farmers, there are a couple of terms which need to be cleared up in their minds. One of these is the common belief that when we talk about meat-type hogs we are discussing one of the bacon breeds. The second is that many farmers still think we are talking about purebred hogs primarily. We have already put on several type demonstrations in counties to educate the farmer on type and expect to put on a united drive during the next year in this direction. In addition to the farmer, we need to educate our breeders. Too many of our breeders still produce the short, blocky type hogs because they claim that their farmers prefer them. We feel that the way to convert the breeder is to set the pattern in the

county, district and State shows. We have made great progress in educating our various local agricultural workers who serve as judges in the county fairs and other shows where hogs are exhibited. They are now placing the meat-type hog up in their judging.

In summary, I would say that success in this campaign will take the full cooperation of producers, purebred breeders, market operators, and packers as well as those of us who are concerned with the educational aspects of the program.



## SELLING BY CARCASS GRADE AND YIELD BASIS 1/

Cattle numbers were increasing rapidly in North Carolina during the late 1940's with some production of slaughter animals. The high prices paid for feeder animals made it extremely important that they be marketed properly in order for the producers to realize a profit which is necessary for the industry to grow. The problem was largely one of scarcity of production. Slaughter animals were not being produced in sufficient numbers in many areas of the State to warrant a special fat steer auction sale. Local packers were working to build up their markets for quality carcass beef, but in the beginning they were very limited in the number they could handle.

In 1950 the livestock marketing specialist, North Carolina Department of Agriculture, began contacting packers in an attempt to encourage buying on a carcass grade and yield basis. One of the large packers cooperated with the program and in a short time, three or four more were added. Mr. H. W. Myrick assisted producers in determining the live grade of their slaughter animals and in contacting packers that would buy on a carcass basis. Bids were also received on live weight basis when possible, and the animals were weighed before being slaughtered so a comparison could be made. In every case the producers were well pleased with selling on a carcass basis and are continuing to do so.

### PRICING

The price is determined largely by the National Provisioner price for carcass beef. Packers in this area can afford to pay the same price that it would cost them to have a carcass of similar grade shipped in. He, in turn, gets the fifth quarter for slaughtering the animals. At times the producer has realized a price for his cattle that would be equivalent to Chicago prices plus freight. This, however, changes with the value of the fifth quarter.

The packers bid on the cattle according to the grade of the carcass. The cattle are slaughtered, properly chilled, and the grader rolls the grade on each carcass before the check is mailed. New producers, especially are encouraged to visit the packing house when the carcasses are being graded.

### TRANSPORTING

The packers in most instances prefer to transport the cattle from the farm to their plant. No direct charge is made for this hauling and it is an added advantage to the farmer. The packers also report far less damage due to bruising when they perform the hauling.

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1/ Presented by H. D. Quessenberry, In Charge, Livestock Division, North Carolina State Department of Agriculture, Raleigh, N. C., at the inter-regional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

CARCASS GRADING

At first the Federal grading program was in effect. This made it very easy for packers to procure a competent and unbiased grader, and it assisted in the initiation of this program. When compulsory grading ended most North Carolina packers were unable to carry on the Federal grading program. At this time the Division of Markets, North Carolina State Department of Agriculture, set up a State grading program using the same specifications as the Federal grades. The State grader is now carrying on this program in five of our North Carolina packing plants. Without the employment of a State grader this method of selling would have ceased with the termination of the compulsory Federal grading program.



## SELLING BY CARCASS GRADE AND YIELD BASIS 1/

I would like to point out further some of the changes that have taken place since this program was started in 1950, as well as discuss the value of this program to the production of slaughter cattle in North Carolina.

### MARKETING FACILITIES

Until recent years, our beef industry in North Carolina was largely a byproduct of the dairy industry, and our marketing facilities were set up up to handle the resulting grade of animal. We have approximately 55 live-stock auction barns in the State that hold weekly sales. There are over 40 packers in the State that buy and slaughter beef cattle regularly. Of this 40 packers approximately 30 now handle better grade steers regularly. As was pointed out, we started with one packer handling beef steers on a carcass grade and yield basis. A recent survey of the packing plants showed that 24 plants are now willing to buy beef animals in this manner.

Many of the auction markets in the State are very progressive and are attempting to handle slaughter cattle to the best advantage of the industry. For this reason I would like to point out that we are also working with our auction markets as well as selling cattle direct to the packers. Several special sales have been held at auction markets where the cattle were graded and sold in pen lots according to weight and grade. As the production of slaughter cattle grows we hope to expand this method of selling in addition to increasing the number sold on a carcass grade and yield basis.

### REDUCTION OF MARKETING COSTS

Many of the slaughter cattle are produced in areas of the State that are a great distance from the larger auction barns. The cost of transporting the animals to the market in addition to the commission charge, was definitely a risk at first since very few steer buyers attended even our larger auction markets. As Mr. Quessenberry pointed out, packers usually prefer to do the hauling when buying cattle on a carcass basis. He also pointed out that the price received in this method of selling was always higher than could be expected on the local market.

Selling on a carcass grade removes the risk of the producer not getting paid for the grade of animal he produces. It also removes the risk for the packer, and it is as much to the packers advantage as it is to the producers that the carcass grade as high as possible. The grade rolled on the carcass is the grade that the packer must use for pricing when he sells. An additional advantage to the packer is that he can, within a reasonable time, pick up the cattle as he needs them.

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1/ Presented by Guy R. Cassell, Livestock Marketing Specialist, North Carolina State College, Raleigh, N. C., at the Interregional Livestock Production and Marketing Conference, June 14-17, 1954, Raleigh, N. C.

## EDUCATIONAL VALUE

Specialists at State College have been encouraging the production of slaughter cattle in North Carolina. They have also cooperated with specialists from the North Carolina Division of Markets in encouraging producers to sell, and packers to buy, cattle on a carcass grade and yield basis. Our job is one of educating the farmer to do a better job of producing and selling his livestock. It is necessary to do more than just get the cattle sold. In teaching the farmer to identify the grades of slaughter steers and how to appraise the value of his cattle I find the most effective way is to invite him to a packing plant when his cattle are being graded. I have cooperated with Mr. Myrick in conducting grading demonstrations of this type. It is helpful to the producer to have explained to him why the carcasses grade good or choice, etc. It also helps him to understand the relative value of the different grades. It is important that a producer know the grade and how to determine the value of each grade of animals that he has for sale in order that he may make better decisions in regard to marketing.

A tour of the packing plant also helps the producer to better understand what use is being made of the animal that he produces. He learns the quality of livestock that the packer can afford to pay a premium for. It is helpful for the farmers to learn that the packer is selling carcasses for approximately the same price that he is paying for them. This seems to encourage farmers to do a better job of producing high quality animals with the desired amount of finish for future sales.

The fact that producers that have sold cattle on a carcass grade and yield basis are satisfied and so tell their neighbors, has been one of the most important factors toward encouraging other farmers to sell cattle in this manner.



REPORT OF RESOLUTIONS COMMITTEE  
OF  
INTERREGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE

June 14 - 17, 1954

The annual Interregional Livestock Production and Marketing Conference held in the Northeastern and Southern regions is the one and only meeting in the area that is planned and conducted by and for Extension livestock workers.

This conference affords an opportunity for the Extension livestock production and marketing specialists, research workers, representatives of the State Departments of Agriculture, U.S. Department of Agriculture and commercial interests to focus their combined thinking on the many problems of common interest in the areas.

This meeting also provides an opportunity for Extension workers to exchange ideas on subject matter, extension programs and methods. As a result of this conference, new slants on established programs and new programs are developed.

Participants in this conference are unanimous in the feeling that this program gets closer to the problems which they face in their work than any area meeting which they attend during the year.

Grading of livestock is a major factor in marketing. This meeting enables the participants to develop a common understanding and yardstick by which the States are enabled to carry out a uniform grading program.

For the above reasons, we strongly urge and recommend to the Extension Directors of the Southern and Northeastern Regions that these conferences be continued.

We wish to express our sincerest appreciation to the personnel of the North Carolina State College and the State Department of Agriculture for their wonderful hospitality and untiring efforts in planning and organizing this program and providing such excellent facilities. We would appreciate the North Carolina Extension staff expressing our thanks to the many cooperating individuals and groups who helped to make the program so successful.

We favor the rotation of the conference to different areas of the two regions which make it possible to get a greater participation by States over a period of years.

We recommend that the invitation from Cornell University to hold the 1955 conference on the campus at Ithaca, N.Y. be accepted.

In order to avoid conflict with the Reciprocal Meat Conference, we suggest that consideration be given to holding the conference during the week of June 20, 1955.

We further recommend that consideration be given next year to holding the 1956 conference at State College, Mississippi.

Myron Lacy, New York, Chairman  
Charles E. Bell, Georgia  
Benj. Creech, West Virginia  
Jack Kelley, North Carolina  
Paul Newell, Mississippi



LIST OF PERSONS IN ATTENDANCE

ALABAMA

G. B. Phillips, Specialist in Animal Husbandry, Alabama Polytechnic Institute, Auburn, Ala.

ARKANSAS

Robert B. Hallmark, Extension Animal Husbandman, Little Rock, Ark.  
Fred W. Harrod, Eastern Arkansas Livestock Specialist, Marianna, Ark.

CONNECTICUT

D. C. Gaylord, Extension Animal Husbandman, University of Connecticut, Storrs, Conn.

DISTRICT OF  
COLUMBIA

Thomas H. Bartilson, Assistant Chief, Animal and Poultry Husbandry Research Branch, Agricultural Research Service, U.S.D.A., Beltsville, Md.  
Harold Breimyer, Head, Livestock Section, Agricultural Economics Division, Agricultural Marketing Service, U.S.D.A., Washington, D. C.  
Ralph Durham, Beltsville Swine Specialist, U.S.D.A., Beltsville, Md.  
Raymond L. Fox, Agricultural Economist, Livestock and Wool Branch, Farmer Cooperative Service, U.S.D.A., Washington, D. C.  
Gale Ueland, Extension Economist, Consumer Education and Marketing Information Branch, Division of Agricultural Economics Programs, Federal Extension Service, U.S.D.A., Washington, D. C.  
S. T. Warrington, Chief, Livestock, Dairy and Poultry Marketing Branch, Division of Agricultural Economics Programs, Federal Extension Service, U.S.D.A., Washington, D. C.  
John Zeller, Head, Swine Section, Animal and Poultry Husbandry Research Branch, Agricultural Research Service, U.S.D.A., Beltsville, Md.

GEORGIA

Charles E. Bell, Extension Livestock Specialist, University of Georgia, Athens, Ga.  
E. T. Hollowell, National Cottonseed Products Association, Inc., Atlanta, Ga.  
Byron Southwell, Animal Husbandman, Georgia Coastal Plain Experiment Station, Tifton, Ga.  
R. O. Williams, Extension Livestock Specialist, Tifton, Ga.

KENTUCKY

R. C. Miller, Sheep Specialist, University of Kentucky, Lexington, Ky.

MARYLAND

Malcolm H. Kerr, Assoc. Professor and Extension Animal Husbandman, University of Maryland, College Park, Md.  
Dr. Emory C. Leffel, Ass't Professor, Animal Husbandry, University of Maryland, College Park, Md.

MARYLAND (Cont'd)

Amos R. Meyer, Associate Professor Marketing, Extension,  
University of Maryland, College Park, Md.

MISSISSIPPI

Paul F. Newell, Leader, Extension Animal Husbandry,  
Mississippi State College, State College, Miss.  
R. M. Lancaster, Ass't Extension Animal Husbandman,  
Mississippi State College, State College, Miss.

NEW YORK

Wendell Earle, Associate Professor of Marketing, Extension,  
Cornell University, College of Agriculture, Ithaca, N. Y.  
George Johnson, Assoc. Professor, Animal Husbandry, Extension,  
Cornell University, College of Agriculture, Ithaca, N. Y.  
Myron Lacy, Extension Animal Husbandman, Cornell University,  
College of Agriculture, Ithaca, N. Y.  
O. B. Price, General Agricultural and Livestock Agent, New  
York Central Railroad System, Rochester 5, N. Y.  
Warren Brannon, Animal Husbandry Department, Cornell Uni-  
versity, College of Agriculture, Ithaca, N. Y.

NORTH CAROLINA

North Carolina State College of Agriculture, Raleigh, N. C.

A. W. Allen, Animal Husbandry Extension Specialist  
E. R. Barrick, Professor of Animal Husbandry  
J. C. Brown, Agriculture Extension  
J. S. Buchanan, Animal Husbandry Extension Specialist  
J. K. Butler, Jr., Animal Husbandry Extension Specialist  
G. R. Cassell, Livestock Marketing Specialist  
D. W. Colvard, Dean of Agriculture, North Carolina State  
College, Raleigh, N. C.  
E. U. Dillard, Professor of Animal Husbandry  
Lemuel Goode, Professor of Animal Husbandry  
E. H. Hostetler, Professor of Animal Husbandry  
Ted Hyman, Agriculture Extension  
H. B. James, Head, Department of Agricultural Economics  
Jack Kelley, In Charge, Animal Husbandry Extension  
James W. Patterson, Animal Husbandry Extension Specialist  
J. W. Pou, Head of Department of Animal Industry  
C. D. Ratchford, Assistant Director, Extension Service  
H. A. Stewart, Head, Animal Husbandry Department  
D. S. Weaver, Director, Extension Service  
J. C. Williamson, Associate Professor of Agricultural Economics  
Milton B. Wise, Professor of Animal Husbandry

A. T. Lassiter, Livestock Marketing, North Carolina State  
Department of Agriculture, Raleigh, N. C.  
H. W. Myrick, Livestock Marketing, North Carolina State  
Department of Agriculture, Raleigh, N. C.  
H. D. Quessenberry, In Charge, Livestock Marketing, North  
Carolina State Department of Agriculture, Raleigh, N. C.  
H. J. Rollins, State Veterinarian, North Carolina State  
Department of Agriculture, Raleigh, N. C.  
D. C. Wayne, Transportation, North Carolina State Department  
of Agriculture, Raleigh, N. C.



NORTH CAROLINA (Cont'd)

John Windfield, Head of Marketing Section, North Carolina  
State Department of Agriculture, Raleigh, N. C.  
W. R. Boger, Livestock Buyer, White Packing Company,  
Salisbury, N. C.  
A. R. Howard, General Agriculture and Livestock Agent,  
Atlantic Coast Line Railroad, Wilmington, N. C.  
Bill Humphries, News and Observer, Raleigh, N. C.  
Joe Lancaster, Manager, Livestock Market, Rocky Mount, N. C.  
Robert Nichols, Farmers Exchange, Durham, N. C.  
L. B. Outlaw, General Agriculture and Livestock Agent,  
Atlantic Coast Line Railroad, Rocky Mount, N. C.  
John Piland, County Agent, Smithfield, N. C.  
C. Y. Tilson, Farmer's Exchange, Durham, N. C.  
Noah Williams, Secretary, North Carolina Tar Heel Hog Buyers,  
Smithfield, N. C.  
Jimmy Wooten, Manager, Livestock Market, Rocky Mount, N. C.  
C. M. Jackson, President, North Carolina Tar Heel Hog Buyers,  
Tarboro, N. C.

PENNSYLVANIA

Dwight Younkin, Extension Animal Husbandry Specialist, State  
College, Penn.  
W. F. Johnstone, Extension Economics, State College, Penn.

SOUTH CAROLINA

L. C. Cato, Extension Livestock Work, Clemson Agricultural  
College, Spartanburg, S. C.  
A. E. DuRant, Extension Livestock Specialist, Florence, S. C.  
W. R. Fleming, Extension Marketing Specialist, P. O. Box 1463,  
Columbia, S. C.

TENNESSEE

J. S. Robinson, Extension Animal Husbandry, University of  
Tennessee, Knoxville, Tenn.  
Joe W. Houston, Assistant Animal Husbandry, University of  
Tennessee, Knoxville, Tenn.  
Harmon H. Jones, Livestock Marketing Specialist, Tennessee  
Department of Agriculture, Nashville, Tenn.

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